Section 3

Disaster Preparedness

Family Disaster Plan

Disasters happen anytime and anywhere. And when disaster strikes, you may not have much time to respond. Would your family be prepared to cope with the emergency until help arrives?

FIRST - Develop a Family Disaster Plan

See **Section 1 - Family Information & Personal Checklists** to help develop an **Emergency Plan** using the checklists similar to ones developed by the Red Cross and FEMA… after reading through this Manual!

SECOND - Develop a Disaster Supplies Kit

Your family will cope best by preparing for disaster BEFORE it strikes. One way to prepare is by assembling a **DISASTER SUPPLIES KIT**.

Once disaster threatens or hits, you may not have time to shop or search for supplies. BUT… if you have gathered supplies in advance, your family can handle an evacuation or shelter living easier and it's all together in one place… all you gotta do is **GRAB & GO**!

Place these supplies you'd most likely need (water, food, first aid & emergency items, etc.) in a container that is easy-to-carry and that will fit in your vehicle. For example, a large trash can or storage container with a lid that snaps shut tightly (some even come with wheels), a waterproof backpack, or a large duffel bag (waterproof, if possible) would be useful.

We are also including suggestions for a **CAR KIT** and a **CLASSROOM or LOCKER or OFFICE KIT** since these are usually the most common places you would be if and when a disaster strikes!

Disaster Supplies Kit

There are six basic categories of supplies you should stock in your home: water, food, first aid supplies, tools and emergency supplies, clothing and bedding, and special items. (Also shown below are suggestions for a **CAR KIT** and a **CLASSROOM or LOCKER or OFFICE KIT**.)

Supplies should ALL be checked every 6 months to make sure they are still good and working! We suggest you mark dates on your calendar and have the entire family help check all the items together. Again, it will be good quality time with the family and it will give you all a chance to update any phone numbers or information that has changed.

Water

A normally active person needs to drink at least 2 quarts (2 litres) of water each day and possibly as much as a gallon (4 litres) a day. *(See **TIPS ON WATER PURIFICATION** in next section.)*

[ ] Store one gallon of water per person per day (two quarts/litres for drinking and two quarts/litres for food preparation and sanitation).

[ ] Keep at least a three-day supply of water for each person in your household. Rotate new bottles every 6 months.

[ ] Store an extra bottle if you have a pet so you don't reduce your amount.

Food

Select foods that require no refrigeration, preparation or cooking and little or no water. If you must heat food, pack a can of sterno. Select food items that are compact and lightweight. Rotate out food in Kit every 6 months.

[ ] Ready-to-eat canned meats, fish, fruits, and vegetables (and include a manual can opener!!)

[ ] Canned juices, milk, soup (if powdered or cubes, store extra water!)

[ ] Staples - sugar, salt, pepper

[ ] High energy foods - peanut butter, jelly, crackers, granola bars, trail mix, nuts, jerky, dried fruits, Emergency Food bars, etc.

[ ] Vitamins & herbs (e.g. a good multiple, extra C & E, Echinacea, St. John's Wort, etc.)

[ ] Foods for infants, elderly persons or persons on special diets

[ ] Foods for your pet (if you have one)

[ ] Comfort/stress foods - cookies, hard candy, sweetened cereal, suckers, instant coffee, tea bags

[ ] Some companies offer survival and long-term storage foods that are freeze dried and sold in several months, 1 year, and 2 year supplies

First Aid Kits

There are many different sizes of First Aid Kits on the market. Or you can make your own kits at home and we suggest you have these products in a **waterproof** container or bag and have one in the Home and in every Car (see below for suggestions on CAR KIT)!

See **TIPS ON FIRST AID KITS** at end of **Section 2**.

Tools and Supplies

[ ] Paper cups, plates and plastic utensils (or Mess Kits) and paper towels

[ ] A copy of this Manual (*IT'S A DISASTER!* ...and what are you gonna do about it?)

[ ] Battery operated radio and extra batteries (remember to check batteries every 6 months)

[ ] Flashlight and extra batteries & extra bulbs (check every 6 months)

[ ] Cash or traveler's check and some change

[ ] Manual can opener and a utility knife

[ ] Fire extinguisher: small canister, ABC type

[ ] Tube tent or plastic sheeting (for shelter or lean-to)

[ ] Pliers

[ ] Tape (plastic & duct)

[ ] Compass

[ ] Matches in a waterproof container and candles

[ ] Aluminum foil

[ ] Sterno or small camp stove and mini propane bottle

[ ] Signal flare

[ ] Paper, pencil (store in baggies to keep dry)

[ ] Needles, thread

[ ] Medicine dropper (various uses – use to measure drops of bleach to purify water, etc.)

[ ] Wrench (to turn off household gas and water)

[ ] Whistle (can be used to call for help in an emergency)

[ ] Map of the area (to help locate shelters)

[ ] Work gloves

Sanitation

Make sure all these items are in a waterproof containers or plastic bags.

[ ] Toilet paper, baby wipes

[ ] Soap, liquid detergent, or waterless hand sanitizer

[ ] Feminine supplies (tampons, pads, etc.)

[ ] Personal hygiene items (toothbrushes, toothpaste or baking soda, brush, comb, etc.)

[ ] Plastic garbage bags, ties (for personal sanitation uses)

[ ] Plastic bucket with tight lid (for human waste use)

[ ] Disinfectant *(See next section on TIPS ON SANITATION OF HUMAN WASTE)*

[ ] Household chlorine bleach (regular scent)

Clothing and Bedding

[ ] Include at least one complete change of clothing and footwear per person.

[ ] Sturdy shoes or work boots and extra socks

[ ] Rain gear or poncho (small emergency ones are cheap and about the size of a wallet or use plastic garbage bags)

[ ] Blankets or sleeping bags (small emergency ones are cheap and about the size of a wallet or pack extra garbage bags)

[ ] Hat and gloves and Thermal underwear

[ ] Safety glasses and/or Sunglasses

[ ] Small stuffed animal, toy or book for each child

Special Items

[ ] Entertainment - games, books and playing cards

[ ] RED and GREEN construction paper or RED and GREEN crayons or markers

[ ] Important Family Documents (keep in waterproof, portable safe container and update when necessary!)

— Extra set of car keys and cash, traveler's checks and a credit card
— Will, insurance policies, contracts, deeds, stocks and bonds
— Passports, social security cards, immunization records
— Bank account numbers
— Credit card numbers and companies
— Inventory of valuable household goods, important phone numbers
— Family records (birth, marriage, death certificates)
— Recent pictures of all family members and pets for identification needs

Remember family members with special needs such as Infants, Elderly and Disabled persons:

For Infants

[ ] Formula

[ ] Diapers

[ ] Bottles

[ ] Powdered milk

[ ] Medications

[ ] Small soft toys

For Elderly and Disabled (Children & Adults)

[ ] Prescription drugs

[ ] Special medicines for Heart, high blood pressure and/or Diabetes (insulin)

[ ] Extra eye glasses or contact lenses and supplies

[ ] Denture needs

[ ] Adult bladder control garments and pads

[ ] Extra hearing aid batteries

[ ] A list of the style and serial numbers of medical devices such as pacemakers

[ ] Extra wheelchair batteries, oxygen, catheters or other special equipment

[ ] Store backup equipment, such as a manual wheelchair, cane or walker at a neighbor's home or at another location

Car Kit

Keep most or all of these items in a waterproof pack so everything is together and easy to grab. Make one for each vehicle too!

[ ] Battery-powered radio, flashlight, extra batteries and extra bulbs

[ ] First Aid Kit

[ ] Local maps

[ ] Blanket (small emergency ones are cheap and about the size of a wallet)

[ ] Extra clothes (jeans and sweater), sturdy shoes and socks

[ ] Shovel (small collapsible ones are available)

[ ] Work gloves

[ ] Tools - Tire repair kit, booster cables, flares, screw driver, pliers, knife, wire

[ ] Short rubber hose (for siphoning)

[ ] Bottled water and non-perishable foods (store food in empty coffee cans to keep it from getting squashed)

[ ] Plastic bags that seal

[ ] Small fire extinguisher (5 lb., ABC type)

[ ] A copy of this Manual (*IT'S A DISASTER!* ...and what are YOU gonna do about it?)

Classroom or Locker or Office Kit

Keep items in a small pack, drawstring bag or duffle so everything is together and easy to grab!

[ ] Small first aid kit

[ ] Battery-operated radio and extra batteries

[ ] Mini or regular flashlight and extra bulbs and batteries

[ ] A few plastic trash bags

[ ] Work gloves to protect your hands (especially due to broken glass)

[ ] Sweatshirt or sweater

[ ] Emergency blanket (small, cheap, & light and about the size of a wallet)

[ ] Non-perishable foods like crackers, cookies, trail mix, granola bars, etc. (Ask children to help with choosing the food and make sure they understand this is for Emergencies!)

[ ] Small (plastic) bottled water or juice… or as much as you can fit in your kit!

[ ] Small stuffed animal, book, or toy for children

[ ] Small packet of tissues

[ ] Small packet of moist towelettes or mini bottle of hand sanitizer (waterless kind)

[ ] A copy of this Manual (*IT'S A DISASTER!* ...and what are YOU gonna do about it?)

Suggestions & Reminders About Kits

- Store your **DISASTER SUPPLIES KIT** in a convenient place known to ALL family members. Keep a smaller version (**CAR KIT**) in the trunk/back of every vehicle.

- Keep items in airtight plastic bags.

- Replace your stored food and water supply every 6 months! It's best to test or replace the batteries at this time too. Make a game of it by keeping track on a calendar or on a poster drawn by the children so they can help! Also, the FAMILY should meet every 6 months anyway to go over the **Emergency Plan** and update any data (phone numbers, address changes, etc.)

- Ask your physician or pharmacist about storing prescription medicines.

Tips on Using Household Foods

Cooking in a Disaster Situation

When disaster strikes, you may not have electricity or gas for cooking. For emergency cooking you can use a charcoal grill, hibachi or propane camping unit or stove - but only do this OUTDOORS! **Never** use charcoal in an enclosed environment since it causes deadly fumes!

You can also heat food with candle warmers or a can of sterno.

Canned food can be heated in the can, but remember to remove the paper label and open the can first! And be careful and don't burn your hand since it may be hot!

If the electricity goes off, use your food wisely…

First - use perishable food and foods from the refrigerator… and limit opening the frig (don't stand and stare in it like we all normally do!)

Second - Use foods from the freezer and, if possible, have a list of items in the freezer on the outside to cut down on opening the door! Foods in a well-filled, well-insulated freezer will not go bad until several days after the power goes off. Usually there will be ice crystals in the center of the food (which means it's okay to eat) for at least 3 days after a power failure.

Third - Use non-perishable foods and staples in your pantry and cupboards.

TIP FOR YOUR FREEZER: Before a disaster strikes, line your freezer wall with jugs of frozen water. Save empty fruit juice bottles or plastic milk jugs and disinfect them with a small amount of regular scent household bleach. (Make sure to swish the bleach around real good to clean the entire jug and handle!)

Let it air dry for an hour or so, then fill with clean water. Place bottle or jug in freezer and it will help keep food cold longer if you lose power and you'll have extra water once it melts! This also helps keep the freezer as full as possible which makes it more energy efficient!

Tips on Water Purification

Water is critical for survival. We can go days, even weeks, without food but we must have water to live. For example, the average man (154 pounds) can lose about 3 quarts/litres of water per day and the average woman (140 pounds) can lose over 2 litres - and this increases depending on your weight and size, on the time of the year, and the altitude!

Your body can lose precious water by sweating and breathing - whether you feel it or not – and, of course, by peeing. In fact, the color of your pee will tell you if you are getting dehydrated! When you drink enough water, your pee will be a light-colored or bright yellow, but when you are dehydrated it will be dark-colored and you'll pee in small amounts.

The average person should drink between 2 and 2 ½ quarts/litres of water per day. We suggest you plan on storing about one gallon (4 litres) per day per person to cover for drinking, cooking and personal hygiene - and don't forget about your pets!

Did you know…

… according to U.N. figures, a child dies every 8 seconds from water-related disease?

… and unsafe water causes 3.3 billion cases of illness and 5 million deaths worldwide each year?

Use any of the following methods to purify drinking water:

Boiling — Boil vigorously for 7-10 minutes..

Bleach — Add 10-20 drops of household bleach per gallon (about 4 litres) of water, mix well and let stand for 30 minutes. A slight smell or taste of chlorine indicates water is good to drink. (NOTE: Do NOT use scented bleaches, colorsafe bleaches or bleaches with added cleaners!)

Tablets — Use commercial purification tablets and follow instructions.

Stabilized oxygen — Use 10 drops of stabilized oxygen per gallon/4 litres of water to help prevent the growth of certain bacteria. (To store water for long periods of time use 20 drops per gallon/4 litres.)

Also, learn how to remove the water in the hot water heater and in other water supplies in your home or office. A few examples of other water supplies include ice cubes and your toilet tank (not the bowl and don't use it if chemicals are in the tank!)

Tips on Sanitation of Human Waste

In disaster situations, plumbing may not be usable, due to broken sewer lines, broken water lines, flooding, or freezing of the system. To avoid the spread of disease, it is critical that human waste be handled in a sanitary manner!

IF TOILET OKAY BUT LINES ARE NOT…

If the water or sewer lines are damaged but the toilet is still intact, you should line the toilet bowl with a plastic bag to collect waste… but DO NOT flush the toilet!!! After use, a small amount of disinfectant should be added to the bag, and the bag sealed and placed in a tightly covered container, away from people.

IF TOILET IS UNUSABLE…

If toilet itself is unusable, a plastic bag in a bucket may be substituted. After use, a small amount of disinfectant should be added to the bag and the bucket should be covered tightly with a lid.

Disinfectants - easy and effective for home use in Sanitation of Human Waste. Choose one to store with your Disaster Supplies Kit:

Chlorine Bleach - If water is available, a solution of 1 part liquid household chlorine bleach to 10 parts water is best. DO NOT use dry bleach, which is caustic (can burn you, corrode, or dissolve) and is not safe for this kind of use.

Calcium hypochlorite - (e.g. HTH, etc.) is available in swimming pool supply stores and several large discount stores. It can be used in solution by mixing, then storing. Follow directions on the package.

Portable toilet chemicals - These come in both liquid and dry formulas and are available at recreational vehicle (RV) supply stores. Use according to package directions. These chemicals are designed especially for toilets that are not connected to sewer lines.

Powdered, chlorinated lime - Available at some building supply stores. It can be used dry and be sure to get chlorinated lime - *not* quick lime!

There are also several types of camping toilets and portable toilets that can be purchased in camping stores and on the Internet that range from fairly low dollars to hundreds of dollars.

What to Do BEFORE A Disaster Strikes (Mitigation Tips)…

There are many things you can do to protect yourself, your home and your property BEFORE any type of natural hazard or disaster strikes!

Please realize that natural disasters have some common elements that overlap (like wind and floods) and we are only summarizing some key topics here to help get you started. There are many mitigation tips and programs available from government agencies, public and private businesses, non-profits and NGOs listed here and in Section 4 of this book that can help you and your family learn more.

What is Mitigation?

Mitigation simply means an effort to lessen the impact disasters have on people, property, communities and the economy. It is also about reducing the risks and involves planning, commitment, preparation and communication between local and federal government officials, businesses and the general public.

Some examples of mitigation include installing hurricane straps to secure a structure's roof to its walls and foundation, building outside of flood plains, securing shelves and other loose objects inside and around the home, developing and enforcing effective building codes and standards, using fire-retardant materials, and the list goes on and on.

Soon we will explain what to do BEFORE, DURING and AFTER specific types of natural and man-made disasters. But first there are some things you should do in advance that take time and planning - otherwise known as prevention or mitigation tips! First we'll cover some tips on the two most common disasters (winds and floods) then we'll list others alphabetically.

Mitigation tips to help prevent damage and loss:

WIND MITIGATION

Wind damage is the most common disaster-related expense and usually accounts for about 70% or more of the insured losses reported worldwide. Many natural disasters like hurricanes, tornadoes, thunderstorms, microbursts, and winter storms include damaging winds. And certain parts of the world experience high winds on a normal basis due to wind patterns.

Realize when extreme winds strike they are not constant - they rapidly increase and decrease. A home in the path of wind causes the wind to change direction. This change in wind direction increases pressure on parts of the house creating stress which causes the connections between building components to fail. For example, the roof or siding can be pulled off or the windows can be pushed in.

Strengthen weak spots on home

Experts believe there are four areas of your home that should be checked for weakness -- the roof, windows, doors and garage doors. Homeowners can take some steps to secure and strengthen these areas but some things should be done by an experienced builder or contractor.

ROOF:

- Truss bracing or gable end bracing (supports placed strategically to strengthen the roof)
- Anchors, clips and straps can be installed (may want to call a professional since sometimes difficult to install)

WINDOWS and DOORS:

- Storm shutters (available for windows, French doors, sliding glass doors, and skylights) or keep plywood on hand
- Reinforced bolt kits for doors

GARAGE DOORS:

- Certain parts of the country have building codes requiring garage doors to withstand high winds (check with local building officials)
- Some garage doors can be strenthened with retrofit kits (involves installing horizontal bracing onto each panel)

Secure mobile homes

Make sure your trailer or mobile home is securely anchored. Consult the manufacturer for information on secure tiedown systems.

Secure or tie down loose stuff

Extreme winds can also cause damage from flying debris that can act like missiles and ram through walls, windows or the roof if the wind speeds are high enough. You should consider securing large or heavy equipment inside and out to reduce some of the flying debris like patio furniture, bar-beque grills, water heaters, garbage cans, bookcases and shelving, etc.

Consider building a shelter or "safe room"

Shelters or "safe rooms" are designed to provide protection from the high winds expected during hurricanes, tornadoes and from flying debris.

FEMA provides an excellent free booklet called "Taking Shelter From the Storm: Building a Safe Room Inside Your House" developed in association with the Wind Engineering Research Center at Texas Tech University. You can learn more by visiting http://www.fema.gov/mit/saferoom/

FLOOD MITIGATION

Flood damage is normally the second most common disaster-related expense of insured losses reported worldwide. Many natural disasters like hurricanes, tornadoes, rain, thunderstorms, and melting snow and ice cause flooding. And there are certain parts of North America that are known as "flood plains" and are at high risk of floods.

But I have insurance...

Insurance companies will cover some claims due to water damage like a broken water main or a washing machine that goes berserk. However, standard home insurance policies DO NOT generally cover flood damage caused by natural events or disasters!

The United States offers a **National Flood Insurance Program** available in most communities and there is a waiting period for coverage. Talk to your local insurance agent or contact NFIP directly at 1-800-427-4771.

Currently Canadians do not have a national flood program, however, there are certain parts of Canada that offer limited flood-damage coverage but it must be purchased year-round and the rates are relatively high. The Insurance Bureau of Canada suggests you consult your insurance representative with questions regarding coverage.

Move valuables to higher ground

If your home or business is prone to flooding, you should move valuables and appliances out of the basement or ground level floors.

Elevate breakers, fuse box and meters

Consider phoning a professional to elevate the main breaker or fuse box and utility meters above the anticipated flood level so flood waters won't damage your utilities.

The next few pages cover some key mitigation tips on several types of disasters (sorted alphabetically). After this mitigation section we cover many natural and man-made disasters in more detail.

Remember... the more you prepare BEFORE disaster strikes, the better off you and your loved ones will be financially, emotionally and physically!

EARTHQUAKE MITIGATION

A lot of the ongoing research by scientists, engineers and emergency preparedness officials has resulted in improvements to building codes around the world. Proven design and construction techniques are available that help limit damage and injuries.

There are also some mitigation measures consumers can take to reduce risk if you live in an earthquake-prone area:

Consider retrofitting your home

There are options to retrofit or reinforce your home's foundation and frame available from reputable contractors who follow strict building codes.

Other earthquake-safety measures include installing flexible gas lines and automatic gas shutoff valves. Changes to gas lines and plumbing in your house must be done by a licensed contractor, who will ensure that the work is done correctly and according to all applicable codes. This is important for your safety.

Secure loose stuff

- Use nylon straps or L-braces to secure cupboards, bookcases and other tall furniture to the wall.
- Secure heavy appliances like water heaters, refrigerators, etc. using bands of perforated steel (also known as "plumber's tape").
- Use buckles or safety straps to secure computers, televisions, stereos and other equipment to tabletops.
- Use earthquake or florist putty to tack down glassware, heirlooms and figurines

FIRE MITIGATION

Home fire protection is very important and covered on pages 106-107. Also see Wildfire Mitigation to learn additional ways to protect your home.

LIGHTNING MITIGATION

Here are some safety tips to prepare your home for lightning.

Install a Lightning Protection System

A lightning protection system does not prevent lightning from striking but does create a direct path for lightning to follow. Basically, a lightning protection system consists of air terminals (lightning rods) and associated fittings connected by heavy cables to grounding equipment. This provides a path for lightning current to travel safely to the ground.

Install surge protectors on or in home

Surge protection devices (SPDs) can be installed in the electrical panel to protect your entire home from electrical surges. Sometimes it may be necessary to install small individual SPDs in addition to the home unit for computers and television sets due to different ratings and voltage levels.

If a home unit is too expensive, consider getting individual surge protection devices that plug into the wall for the refrigerator, microwave and garage door openers. Appliances that use two services (cable wire and electrical cord) may require combination SPDs for computers, TVs, and VCRs.

WILDFIRE MITIGATION

As our population continues to grow, more and more people are building homes in places that were once pristine wilderness areas. Homeowners who build in remote and wooded areas must take responsibility for the way their buildings are constructed and the way they landscape around them.

Use Fire Resistant Building Materials

The roof and exterior structure of your home and other buildings should be constructed of non-combustible or fire-resistant materials. If wood siding, cedar shakes or any other highly combustible materials are used, they should be treated with fire retardant chemicals.

Landscape wisely

Plant fire-resistant shrubs and trees to minimize the spread of fire and space your landscaping so that fire is not carried to your home or other surrounding vegetation. Remove vines from the walls of your home.

Create a “safety zone” around the house

- Mow grass regularly.
- Stack firewood at least 100 ft (30 m) away and uphill from home.

- Keep your roof and gutters free of pine needles, leaves, and branches and clear away flammable vegetation at least 30 to 100 feet (9 to 30 m) from around your structures.
- Thin a 15-foot (4.5 m) space between tree crowns and remove limbs within 10-15 feet (3-4.5 m) of the ground.
- Remove dead branches that extend over the roof.
- Prune tree branches and shrubs within 10 feet (3 m) of a stovepipe or chimney outlet.
- Remove leaves and rubbish from under structures
- Ask the power company to clear branches from power lines.
- Keep combustibles away from structures and clear a 10-foot (3 m) area around propane tanks, barbeques, boats, etc.

Protect your home

- Install smoke detectors, test them each month and change batteries once a year.
- Consider installing protective shutters or heavy fire-resistant drapes
- Inspect chimneys at least twice a year and clean every year
- Cover chimney and stovepipe flue openings with 1/2 inch (1 cm) or smaller non-flammable mesh screen
- Use this same mesh screen beneath porches, decks, floor areas and the home itself. Also screen openings to attic and roof.
- Soak ashes and charcoal briquettes in water for two days in a metal bucket
- Keep a garden hose connected to an outlet
- Have fire tools handy (ladder, shovel, rake, saw, ax, bucket, etc.)
- Address should be visible on all structures and seen from the road

WINTER STORM & EXTREME COLD MITIGATION

Severe winter weather causes deterioration and damage to homes every year. There are many things you can do to prepare for the bitter cold, ice and snow in advance to save you money and headaches in the long run. Some of these tips should be used by apartment dwellers too!

"Winterize" your home

- Insulate walls and attic
- Caulk and weather-strip doors and windows to keep cold out
- Install storm windows or cover windows with plastic film from the inside to keep warmth in
- Detach garden hoses and shut-off water supply to those faucets
- Install faucet covers or wrap them tightly with towels and duct tape

- Show family members the location of your main water valve and mark it so you can find it quickly
- Drain sprinkler water lines or well lines before the first freeze
- Keep the inside temperature of your home at 68 degrees Fahrenheit (20 degrees Celsius) or higher, even if you are leaving
- Wrap pipes near exterior walls with heating tape or towels
- Change furnace filters regularly and have it serviced periodically
- Make sure you have good lighting from the street and driveway to help others see snow and ice patches and try to keep paths clear
- Remove dead tree branches since they break easily
- Cover fireplace and stovepipe openings with fire-resistant screens
- Check shingles to make sure they are in good shape

Preventing "ice dams"

A lot of water leakage and damage around outside walls and ceilings are actually due to "ice dams". Ice dams are lumps of ice that form on gutters or downspouts and eavestroughs and prevent melting snow from running down. An attic with no insulation (like a detached garage) or a well-sealed and insulated attic will generally not have ice dams. But if the roof has many peaks and valleys, is poorly insulated, or has a large roof overhang, ice dams usually happen.

Some tips to prevent ice dams:

- Keep gutters and downspouts clear of leaves, twigs and debris
- Find areas of heat loss in attic and insulate it properly
- Wrap or insulate heating duct work to reduce heat loss
- Remove snow buildup on roof and gutters using a snow rake or soft broom
- Consider installing roof heat tapes (electric cables) that clip onto the edge of your shingles to melt channels in the ice (but realize the cables use a lot of energy and may not be too attractive but may help on older homes with complicated roofs)

Preventing frozen pipes

- Keep cabinet doors open under sinks so heat can circulate
- Run a slow trickle of lukewarm water and check water flow before going to bed and when you get up. (The first sign of freezing is reduced water flow so keep an eye on it!)
- Heat your basement or at least insulate it well!
- Close windows and keep drafts away from pipes since air flow can cause pipes to freeze more often.

Mitigation Tips Summary...

Take responsibility...
Basically, no matter where you live, you should take personal responsibility and prepare yourself, your family and your property BEFORE disasters or natural hazards strike.

...and learn more!
After reviewing the remainder of this book, please contact your local emergency officials or your local building department to learn about all the risks in your area and what to expect if disaster strikes.

Remember, the best thing you can do to deal with any type of disaster is…

BE AWARE… **BE PREPARED**… and… **HAVE A PLAN**!

If you do these 3 things, the life and property you save could be your own… because what you don't know CAN hurt you!

Mitigation Strategies for Businesses & Consumers

Both the U.S. and Canada have national programs designed to help the public, businesses and communities prepare for the unexpected.

In the U.S., the Pre-Disaster Mitigation Program (PDM) builds on the experience gained from previous community-based disaster mitigation grants, the Hazard Mitigation Grant Program, and other initiatives like Project Impact. And FEMA recently united the Federal Insurance Administration and the Mitigation Directorate to create the Federal Insurance and Mitigation Administration (FIMA). FIMA combines organizational activities to promote Protection, Prevention, and Partnerships at the Federal, State, local and individual levels to lessen the impact of disasters upon families, homes, communities and economy. To learn more please visit FIMA online at http://www.fema.gov/fima/

In Canada, SAFE GUARD is a national information program aimed at increasing awareness of emergency preparedness. Originally an Emergency Preparedness Canada initiative, SAFE GUARD has now developed into a partnership of organizations with a defined role or interest in ensuring and promoting the safety and security of Canadians through all levels of government, NGOs, businesses and associations. *(Please see **APPENDIX B** for more information about SAFE GUARD.)*

What to Expect When A Disaster Strikes…

Local government and disaster-relief organizations will try to help you but there are many times they cannot reach you immediately after a disaster.

You should be ready to be self-sufficient for at *least* three days… possibly longer depending on the type of disaster!

This may mean providing for your own shelter, food, water and sanitation.

If you have planned ahead, it will be easier to recover from a disaster as long as you have your **Disaster Supplies Kit** and an **Emergency Plan** for you and your family. This can help reduce some of the fear, anxiety and losses that surround a disaster.

By planning ahead, you will know where to go, be ready to evacuate if necessary, and be a little more comfortable in a shelter by having some of your own personal items with you in your **Disaster Supplies Kit**.

Now we are going to explain what to do **BEFORE**, **DURING** and **AFTER** specific types of natural and man-made disasters. There are also sections on **RECOVERING FROM A DISASTER** (includes many "AFTER" tips that apply to most every type of disaster) and on **SHELTER LIVING**.

As we mentioned in the Introduction, a majority of this information was compiled from various publications provided by the Red Cross, FEMA, Canada's OCIPEP and others to help assist you in preparing for various types disasters.

We realize you may not experience every type of disaster in your part of the world but if you ever travel away from home you could potentially be placed in a disaster situation so please educate yourself and your family.

What are YOU gonna do about…
Avalanches, Landslides & Mudflows?

Avalanches - masses of loosened snow or ice that tumble down the side of a mountain, often growing as it descends picking up mud, rocks, trees and debris triggered by various means including wind, rapid warming, snow conditions and humans.

Landslides - masses of rock, earth or debris that move down a slope and can be caused by earthquakes, volcanic eruptions, and by humans who develop on land that is unstable.

Mudflows - rivers of rock, earth, and other debris soaked with water mostly caused by melting snow or heavy rains and create a "slurry". A "slurry" can travel several miles from its source and grows in size as it picks up trees, cars, and other things along the way just like an avalanche!

Please realize data on avalanches fill up entire books and we are only touching on some basic information here with some references to obtain more information, then we'll briefly cover landslides and mudflows.

Avalanche Basics

Snow avalanches are a natural process and happen about a million times per year worldwide. Contrary to what is shown in the movies, avalanches are not triggered by loud noises like a shout or a sonic boom -- it's just not enough force. An avalanche is actually formed by a combination of several things -- a steep slope (the terrain), the snowpack, a weak layer in the snowpack, and a natural or artificial "trigger".

Nearly all avalanches that involve people are triggered by the victim or a member of their party. Each year avalanches claim between 100-200 lives around the world and thousands of people are partly buried or injured in them.

Millions of skiers, hikers, climbers, snowshoers, snowboarders, and snowmobilers venture out every year to enjoy winter sports forcing activities, roads, buildings and towns into avalanche-prone areas. Compound that with recreationists who cross into the backcountry with little or no basic avalanche training... and you've got a recipe for potential disaster!

Types of avalanches

Slab - the most dangerous type of avalanche since it causes most fatalities. Experts compare slab avalanches to a dinner plate sliding off the table - a heavier plate of snow slides on top of weaker snow down a slope. An average-sized dry slab avalanche travels about 80 mph (128 km/h) and it's nearly impossible to outrun it or get out of the way!

Most avalanche deaths are caused by slab even though there are many obvious signs that indicate danger -- so educate yourself before venturing out into the backcountry!

Powder or loose snow - fresh fallen, light, dry snow (similar to fine sugar) rolls downhill with speeds of 110-180 mph (180-290 km/h) and swirls of powder climbing several thousand feet into the air. This is the most common type of avalanche and the danger is usually not the weight or volume but rather victims being pushed over a cliff or into a tree.

Some other types of avalanches include **ice falls**, **wet** and **point release**. You can find more information on the Internet at the North American Avalanche Centers' web site www.avalanche.org or visit your local library.

Typical Avalanche Victims

Nearly everyone caught in an avalanche is either skiing, snowboarding, riding a snowmobile, snowshoeing, hiking or climbing in the backcountry and they, or someone in their party, almost always trigger the avalanche that kills them. According to the American Avalanche Association the majority of victims are white, educated men between the ages of 18-35 who are very skilled at their sport.

One key is for the public to take personal responsibility and learn more about avalanche risks and safety procedures. The AAA has seen an increase in attendance now that avalanche educators are re-designing their courses to accommodate snowmobilers, snowboarders and other groups.

People should be prepared and learn how to recognize, assess and avoid avalanche danger by taking an avalanche-related course before entering the backcountry.

The "Avalanche Triangle"

The following information was excerpted from the **USDA Forest Service National Avalanche Center's** web site under "Avalanche Basics":

Avalanches are formed by a combination of 3 ingredients (sometimes called the "avalanche triangle")...

Terrain - the slope must be steeper than 25 degrees and most often occur on slopes between 35 and 45 degrees. Most slab avalanches occur on slopes with starting zone angels between about 30 and 45 degrees.

Snowpack - the snowpack accumulates layer by layer with each weather event and both strong and weak layers exist. Strong layers contain small round snow grains that are packed closely together and well bonded (or cohesive). Weak layers are less dense and appear loose or "sugary". When a strong dense layer is over a weak less dense layer it's like a brick on top of potato chips -- the chips can't hold up the weight of the brick so an avalanche occurs. Backcountry recreationists must learn the relationship of these layers because weak layers prevent strong layers from bonding with one another thus causing unstable conditions.

A snowpack is balanced between stress and strength -- add additional stress (like more snow or a human) and an avalanche could be triggered.

Weather - precipitation, wind and temperature can alter the stability of the snowpack by changing the balance between stress and strength. The type of precipitation and at what rate it falls are equally as important as the amount. If a lot of snow falls in a short amount of time, the snowpack has less time to adjust to the additional stress. Wind can blow large amounts of snow around shifting the stress on the snowpack. And rapid warming temperatures can cause snowpacks to become very wet and unstable.

Before An Avalanche:

1. Learn about local risks by contacting the local emergency management office *(see Section 4 for State & Provincial listing),* especially if you are visiting or moving to an "avalanche-prone" area.
2. Take an avalanche safety training course from a professional trainer or educator! Avalanche educators offer a variety of courses and levels ranging from recreational novices to backcountry experts. Visit www.avalanche.org and click on "Education".
3. Learn the Avalanche Danger Scales and corresponding colors used where you live or plan on visiting.
4. Carry avalanche rescue equipment or gear like portable shovels, collapsible probes or ski-pole probes, high frequency avalanche beacons

(transceivers), etc. and learn how to use it! Remember... just having avalanche equipment will NOT keep you out of an avalanche!!

5. Check weather forecasts and avalanche advisories before going out.
6. Switch beacon on prior to entering the backcountry! Check the battery strength and verify the "transmit" and "receive" functionality with everyone in your group to ensure beacons are picking up both signals.
7. Before crossing a snow covered slope in avalanche terrain, fasten your clothing securely to keep snow out and remove your ski pole straps.

During an Avalanche:

Bail - try out get out of the way if possible! (For example, if a skier or boarder - ski out diagonally... if on a snowmobile - drive downhill, etc.)

If YOU are caught in the avalanche...

Scream and drop it - Yell and drop your ski poles (or anything in your hands) so they don't drag you down

Start swimming - Use "swimming" motions, thrusting upward to try to stay near the surface of the snow

Prepare to make an air pocket - try to keep your arms and hands moving so the instant the avalanche stops you can make an air pocket in front of your face by punching in the snow around you before it sets

If you see SOMEONE ELSE caught in the avalanche...

Watch - watch them closely as they are carried downhill, paying particular attention to the last point you saw them

After an Avalanche:

If YOU are caught in the avalanche...

Make an air pocket ASAP! - the INSTANT the avalanche stops try to maintain an air pocket in front of your face by using your hands and arms to punch in the snow and make a pocket of air. (You only have 1-3 seconds before the snow sets -- and most deaths are due to suffocation!)

Stick it out - If you are lucky enough to be near the surface, try to stick out an arm or a leg so that rescuers can find you

Don't panic - keep your breathing steady to help preserve your air space and help your body conserve energy

Listen for rescuers - since snow is such a good insulator the rescuers probably won't even hear you until they are practically on top of you so don't start yelling until you hear them. (This will conserve your precious air!)

If you see SOMEONE ELSE caught in the avalanche...

Watch - keep watching the victim(s) as they are carried downhill, paying particular attention to the last point you saw them

DO NOT go for help! - Sounds crazy but the victim only has a few minutes to breathe under the snow, so every second counts! Spend 30 minutes to an hour searching before going for help (unless you have a large party and someone can go while the rest search)

Be aware - assess the situation and dangers... in many cases it is safe to go in after the avalanche settles but proceed with caution!

Look for clues - start looking for any clues on the surface (like poles, a hand or foot, etc.) where victim was last seen. And remember, equipment and clothing can be ripped off during the avalanche but can help determine the direction they were carried.

Switch to "receive" - turn all transceivers to "receive" to try to locate a victim's signal (in the event victim is wearing one and has it set correctly!)

Mark the spot - if you lost sight of the victim or can't find any visible clues on the surface, mark the spot where victim was last seen

Probe in a line - when searching with probes, stand shoulder to shoulder in a line across the slope and repeatedly insert probes moving down the slope

Listen - make sure you listen for any muffled sounds as you search

Find them...dig them out! - if you find the victim, dig them out as quickly as possible! Survival chances reduce the longer they are buried.

To learn more about avalanches visit the North American Avalanche Centers' web site at www.avalanche.org. Or see our ADDITIONAL RESOURCES & WEB SITES listed at the end of this book.

Now we will briefly cover landslides and mudflows. Realize many types of disasters like earthquakes, volcanic eruptions, rain and wind erosion can cause land, rocks and mud to shift and move, sometimes at rapid speeds. Compound that with gravity and these earth movements can become extremely destructive.

Another major factor is the world's growing population is sprawling out of major cities and developing in high-risk areas. There are some warning signs to indicate if you have a potential problem.

Landslide Warning Signs:

— cracks opening on hill slopes
— springs or saturated ground in areas not typically wet before
— evidence of slow, downhill movement of rock and soil
— tilted trees, poles, decks, patios or walls
— visible changes such as sags and bumps in the slope
— doors and windows sticking meaning structure may be shifting

Consult a professional landscaping expert for opinions and advice on landslide problems and what you can do to help slow it down or fix it.

Before A Landslide or Mudflow:

1. Ask your local emergency management office *(see Section 4 for State & Provincial listing)* if your property is a "landslide-prone" area. Or contact your County/Municipal or State/Provincial Geologist or Engineer.
2. Find out more about the **National Flood Insurance Program** (**NFIP**) since a mudflow is covered by their flood insurance policy *(see #8 in section BEFORE A FLOOD for more information on NFIP)*
3. Be prepared to evacuate and learn evacuation routes. *(see EVACUATION)*
4. Plant ground cover on slopes and build retaining walls.

During a Landslide or Mudflow:

Whether you are in a vehicle, outside, or in your home – GET TO SAFER GROUND!

(Since most other disasters cause landslides and mudflows, we are not going to discuss this here but will cover it in their respective sections!)

After a Landslide or Mudflow:

Listen - local radio and TV reports will keep you posted on when it is safe to return or check with your local police or fire departments

Insurance - if your home suffers any damage, contact your insurance agent and keep all receipts for clean-up and repairs

What are YOU gonna do about…
An Earthquake?

Earthquakes can cause buildings and bridges to collapse, down telephone and power lines, and result in fires, explosions and landslides. Earthquakes can also cause huge ocean waves, called tsunamis, which travel long distances over water until they hit coastal areas.

Our planet's surface is actually made up of slowly-moving sections (called "tectonic plates") that can build up friction or stress in the crust as they creep around. An earthquake occurs when this built up stress is suddenly released and transmitted to the surface of the earth by earthquake waves (called seismic waves).

There are actually about one million small earthquakes, or seismic tremors, per year around the world. Many earthquakes are too small to be felt, but when they happen, you will feel shaking, quickly followed by a rolling motion that can rotate up, down, and sideways that lasts from a few seconds to several minutes!

BEFORE AN EARTHQUAKE:

1. Review **EARTHQUAKE MITIGATION** tips on page 86.
2. Look for items in your home that could be hazardous during an earthquake.
   - Place large or heavy objects on lower shelves and fasten shelves to walls, if possible
   - Hang heavy pictures and mirrors away from beds
   - Store bottled foods, glass, china and other breakables on low shelves or in cabinets that can fasten shut
   - Repair any faulty electrical wiring and leaky gas connections
3. Know where and how to shut off electricity, gas and water at main switches and valves and share this information with family members.
4. Hold earthquake drills with your family
   - SAFE SPOTS - under a sturdy table or against an inside wall
   - DANGER ZONES - near windows or bookcases or furniture that can fall over
5. Sit down as a family and create an **Emergency Plan** and a **Disaster Supplies Kit** *(See Sections 1 and 3)*

6. Develop a plan for getting the family back together including out-of-state contacts to call to let everyone know you are okay.
7. Review your insurance policies. Some damage may be covered even without specific earthquake insurance.

During an Earthquake:

Stay calm and stay where you are! Most injuries happen when people are hit by falling objects when running IN or OUT of buildings.

IF INDOORS – stay inside!

- Find a SAFE SPOT - under a heavy desk, bench or table or against an inside wall
- Avoid DANGER ZONES - glass, windows, outside door or walls and anything that can fall

IF OUTDOORS - stay outside! Try to move away from buildings, power lines and street lights.

IF IN A CROWDED PUBLIC PLACE - do not run for the door… a lot of other people will try to do that!

- Find a SAFE SPOT and avoid DANGER ZONES
- Move away from display shelves containing objects that will fall

IF IN A HIGH-RISE BUILDING – stay on the same floor!

- Find a SAFE SPOT (under a desk or table)
- Move away from outside walls and windows
- Stay in the building on the same floor since you may not have to evacuate
- Realize the electricity may go out and alarms and sprinkler systems may go on
- DO NOT use the elevators!

IF IN A MOVING VEHICLE - stop as quickly and safely as you can!

- Stay in the vehicle
- Try not to stop near or under buildings, trees, overpasses, or power lines
- Watch for road and bridge damage and be ready for aftershocks once you drive again

After an Earthquake:

Aftershocks - usually not as strong as an earthquake but can cause a lot more damage to weakened structures. Aftershocks can be just a few more shakes or may go on for days, months or even years!

Injuries - check for injuries to yourself and people around you. Do not try to move seriously injured people unless they are in danger. If you must move an unconscious (passed out) person, keep their head and neck still and call for help! *(See Section 2 – TIPS ON BASIC FIRST AID)*

Light - Never use candles, matches or lighters after an earthquake since there might be gas leaks. Use flashlights or battery powered lanterns.

Check home - look for structural damage and have a professional check it if anything seems strange

Check chimney - first check it from a distance to see if it looks normal and have a professional check it if anything seems strange - especially before using it!

Clean up - any flammable liquids (bleaches, gasoline, etc.) should be cleaned up immediately

Inspect - check all utility lines and appliances for damage

- **smell gas or hear hissing** - open a window and leave the building. Shut off main valve outside, if possible, and call a professional to turn it back on when it's safe
- **electrical damage** - switch off power at the main fuse box or circuit breaker
- **water pipes** - shut off the water supply at the main valve
- **toilets** - do not use until you know sewage lines are okay

Water - if water is cut off or contaminated then use water from your **Disaster Supplies Kit** or water heater

Phones - keep calls to a minimum to report emergencies since most lines will be down

Listen - keep up on news reports for the latest information

Things to avoid:

- **going out** - try to stay off the roads to reduce risk
- **watch out** - look out for fallen objects and bridge and road damage
- **stay away** - unless emergency crew, police or firemen ask for your help stay away from damaged areas
- **downed power wires**

Tsunami - If you live near the coast, a tsunami can crash into the shorelines so listen for warnings by local authorities *(see section on TSUNAMIS)*

RED or GREEN sign in window – After a disaster, Volunteers and Emergency Service personnel will be going door-to-door to check on people. By placing a sign in your window that faces the street near the door, you can let them know if you need them to STOP HERE or MOVE ON.

Either use a piece of RED or GREEN construction paper or draw a big RED or GREEN "X" (using a crayon or marker) on a piece of paper and tape it in the window.

- RED means STOP HERE!
- GREEN means EVERYTHING IS OKAY…MOVE ON!
- Nothing in the window would also mean STOP HERE!

What are YOU gonna do about…
An Evacuation?

Evacuations are more common than most people realize and happen for a number of reasons – fires, floods, hurricanes and chemical spills on the roads or railways.

When community evacuations become necessary, local officials provide information to the public through the media. Government agencies, the Red Cross and other disaster relief organizations provide emergency shelter and supplies. But as we have stated *several* times throughout this Manual, you should have enough food, water, clothing and emergency supplies for at least 3 days - or longer in a catastrophic disaster - in case you cannot be reached by relief efforts.

The amount of time to evacuate depends on the type of disaster, of course. Hurricanes can be tracked and allow a day or two notice to get ready, but many other types of disasters happen without much notice… so prepare NOW!!

Before an Evacuation:

(Most of this is covered in Sections 1 & 3 of this manual.)

1. Ask your local emergency management office about community evacuation plans and learn the evacuation routes.
2. Sit down with your family and create an **Emergency Plan** and include where you would go and how you would get there *(see Section 1)*.
3. Include a place to meet your family in case you are separated from one another *(see **EMERGENCY PLAN** in Section 1)*.
4. Find out where your children will be sent if they are in school when an evacuation is announced.
5. Assemble a **Disaster Supplies Kit** *(see first part of Section 3)*.
6. Keep car fueled up if an evacuation seems likely since gas stations may be closed during emergencies.
7. Know how to shut off electricity, gas and water at main switches and valves (and have a wrench handy to do this.)

During an Evacuation:

Listen - keep up on news reports for the latest information

Supplies - Grab your **Disaster Supplies Kit** (water, food, clothing, emergency supplies, insurance and financial records, etc.)

What to wear - wear protective clothing and sturdy shoes

Secure home - close up and lock doors and windows, unplug appliances, protect water pipes (if freezing weather), etc. *(See specific disaster for additional tips on securing home)*

Shut off utilities - turn off the main water valve and electricity, if instructed to do so

Alert family/friends - let others know where you are going (or at least leave a message or note in clear view explaining where you can be found)

Things to avoid:

- **bad weather** - leave early enough so you are not trapped
- **shortcuts** - they may be blocked. Stick to the recommended Evacuation routes!
- **flooded areas** - roadways and bridges may be washed-out
- **downed power lines**

What are YOU gonna do about… Extreme Heat?

What is Extreme Heat? Temperatures that hover 10 degrees or more above the average high temperature for that area and last for several weeks are considered "extreme heat" or a **heat wave**. Humid and muggy conditions can make these high temperatures even more unbearable. Really dry and hot conditions can cause dust storms and low visibility. **Droughts** occur when a long period passes without enough rainfall. A heat wave combined with a drought is a very dangerous situation!

Doing too much on a hot day, spending too much time in the sun or staying too long in an overheated place can cause **heat-related illnesses**. Know the symptoms of heat illnesses and be ready to give first aid treatment. *(see Section 2 HEAT-RELATED ILLNESSES)*

Before Extreme Heat Hits:

1. Improve window air conditioners' performance:
   - Close any floor heat vents nearby
   - Insulate gaps around air conditioners (using foam, duct tape, etc.)
   - Use a circulating or box fan to spread the cool air around

2. Keep heat outside and cool air inside:
   - Use aluminum foil covered cardboard in windows to reflect heat back outside
   - Use weather-stripping on doors and windowsills to keep cool inside

3. Keep storm windows up all year to help keep cool in.

During Extreme Heat:

Protect windows - if you hang shades, drapes, sheets, or awnings on windows that get both morning and afternoon sun you can reduce heat from entering home by as much as 80%

Conserve power - during heat waves there are usually power shortages since everyone is trying to cool off, so stay indoors as much as possible.

Conserve water - lower water usage, especially during drought conditions. Watering the lawn or washing your car wastes precious water.

(Water Conservation Tip: put a brick in the **tank** of your toilet to reduce the amount of water used when you flush it.)

No A/C - if you have no air conditioning, try to stay on the lowest floor out of the sunshine and use electric fans to help keep you cool

Eat light - well-balanced light meals are best, especially fresh fruits and veggies!

Drink WATER - increase the amount of water you drink, especially in dry climates (deserts and high elevation) since you don't realize how dehydrated you are getting!

Limit booze - even though beer and alcoholic beverages may be refreshing on a hot day, they actually cause your body to dehydrate more!

What to wear - loose-fitting clothes that are light colored (to reflect heat)… and cover as much skin as possible. Dark colors attract sun and heat. Also wear a wide-brimmed hat to protect face and neck.

Use sunscreen - apply lotion or cream at least 20 minutes before going outside so the skin can absorb and protect, especially your face and neck (SPF 15-30 is best but an SPF 8 should be the lowest you go)! You usually burn within the first 10 minutes outside, so take care of your skin… especially children!! A sunburn slows the body's ability to cool itself and can be extremely dangerous.

Working outdoors - if you have to do yard work or other outdoor work, try to do it in the early morning hours to limit your exposure in the sun. The most powerful sun is between 10 a.m. and 3 p.m. (when you burn the quickest) so limit outdoor activity during the heat of the day, if possible.

Ozone alerts - these can cause *serious* danger to people with breathing and respiratory problems (especially children and the elderly) so limit your time outdoors when alerts are announced on the radio, newspapers or TV.

- **ozone** - a colorless gas that is in the air we breathe and is a major element of urban smog.
- **ground-level ozone** - considered an air pollutant and can lower resistance to colds, cause problems for people with heart and lung disease, and cause coughing and throat irritation
- **ozone levels** - (also called the Air Quality Index) between 0-50 are fine, but anything above 100 is extremely dangerous! When the weather is hot and sunny with little or no wind it can reach unhealthy levels.

What are YOU gonna do about… Fires & Wildfires?

Since fire spreads so quickly, there is NO time to grab valuables or make a phone call! In just two minutes a fire can become life threatening! In five minutes a house can be engulfed in flames!

A fire's heat and smoke are more dangerous than the actual flames since you can burn your lungs by inhaling the super-hot air. Fire produces a poisonous gas that makes you drowsy and disoriented (confused). Instead of being awakened by a fire, you could fall into a deeper sleep!

We are going to cover two subjects here -- **FIRES** and **WILDFIRES**. First we will discuss FIRES like you might encounter in your home or apartment, then we will cover WILDFIRES since there are many things people need to think about when living near wilderness areas.

Before A Fire (Fire Safety Tips):

1. **INSTALL SMOKE DETECTORS!** If you already have smoke detectors, clean and check them once a month and replace batteries once a year!
2. Create an Escape Plan that includes two escape routes from every room in the house and walk through the routes with your entire family. *(See Section 1 for checklists and Emergency Plans)* Also...
   - Make sure windows are not nailed or painted shut
   - Make sure security bars on windows have a fire safety opening feature so they can be easily opened from the inside… and teach everyone how to use it!
   - Teach everyone how to stay LOW to the floor (where air is safer) when escaping fire.
   - Pick a spot outside to meet family members after escaping a fire (meeting place).
3. Clean out storage areas and don't let newspapers and trash stack up!
4. Check electrical wiring and extension cords, and don't overload extension cords or outlets!
5. Never use gasoline or similar liquids indoors, and never smoke around flammable liquids!

6. Check furnaces, stoves, cracked or rusty furnace parts, and chimneys. They should all be clean and in working order.
7. Be careful with electrical space heaters and keep them at least 3 feet (1 m) away from flammable materials.
8. Make sure your home insulation does not touch electrical wiring.
9. Know where the circuit breaker box and gas valve is and how to turn them off, if necessary. (Always have a gas company representative turn on a main gas line.)
10. Install ABC fire extinguishers in the home and teach family members how to use them.
11. Ask your local fire department if they will inspect your home for fire safety and prevention.
12. Teach children that matches and lighters are TOOLS, not toys! And teach children if they see someone playing with fire they should tell an adult right away!!
13. Teach children how to report a fire and when to call 9-1-1.

During A Fire:

Leave - DO NOT take time to try to grab anything except your family members! Once you are outside, do not try to go back in (especially for pets) - let the firemen do it!

GET DOWN - always stay low to the ground, especially if there is smoke around! Crawl on your hands and knees or squat down and walk like a duck… but keep moving to find a way out!

Closed door - Always feel the bottom of the door with the palm of your hand before you open it!

- **if door is cool** - leave quickly and crawl to an exit
- **if door is hot** – DO NOT open it and escape through a window, if possible

No way out - if you cannot find a way out of the room you are trapped in (door is hot and too high to jump) then hang a white or light-colored sheet outside the window to alert the firemen.

Use stairs - never take the elevator… always use stairs!

If YOU are on fire - if your clothes ever catch fire, **STOP** what you're doing, **DROP** to the ground, cover your face and **ROLL** until the fire goes out. Running only makes the fire burn faster!

Small fire - never try to put out a fire that is getting out of control since it may put you and your family in danger!

- **electrical fire** - do not use water… use a fire extinguisher approved for electrical fires
- **oil or grease fire in kitchen** - smother the fire with baking soda or salt (or if it's burning in a pan or skillet, carefully put a lid over it!)

After A Fire:

Don't go in there - never enter a fire-damaged building until the authorities say it is okay

Look - watch for signs of smoke or heat in case the fire isn't totally out

Utilities - have an electrician check your household wiring before you turn the power back on and DO NOT try to reconnect any utilities yourself!

Damage - look for structural damage (roof, walls, floors, etc.) since they may be weak

Call for help - your local disaster relief service (Red Cross, Salvation Army, etc.) can help provide shelter, food, or personal items that were destroyed.

Insurance - call your insurance agent and…

- Keep receipts of all clean-up and repair costs (for both insurance and income taxes)
- Do not throw away any damaged goods until an official inventory has been taken by your insurance company

If you rent - contact your landlord since it is the owner's responsibility to prevent further loss or damage to the site

Move your stuff - secure your personal belongings or move them to another location, if possible

To learn more about fire safety and fire prevention visit the U.S. Fire Administration's web site www.usfa.fema.gov or contact your local fire department, state or provincial emergency management official, or your insurance agent or representative.

Wildfires are intense fires that are usually caused by careless humans or lightning. Campfires, children playing with matches or lighters, and cigarettes are the probably the most common things that cause brush fires or wildfires so please be careful when you are out in the deserts, mountains, or any other heavy vegetation areas.

NEVER leave a campfire burning - make sure it is completely out using plenty of water before leaving the area. Stir the coals around with a stick or log while pouring water over them to ensure all the coals get wet and they are no longer hot. Any hot coals left unattended can be easily ignited by wind since they can stay hot for 24 - 48 hours!

When building a campfire, always choose a level site, clear away any branches and twigs several feet from the fire, and never build a fire beneath tree branches or on surface roots. Also, build at least 10 feet (3 m) from any large rocks that could be blackened by smoke or cracked from the fire's heat. See your local Forest Service office or Ranger Station for more information on campfires and permits.

Before A Wildfire (Fire Safety Tips):

1. Review **WILDFIRE MITIGATION** tips on pages 87-88.
2. Ask fire authorities or the forestry office for information on fire laws in your area.
3. Make sure that fire vehicles can get to your property and that your address is clearly marked.
4. Create a 30-100 ft (9-30 m) safety zone around your home (see tips on pages 87-88)
5. Teach children about fire safety and keep matches and lighters away from them.
6. Report hazardous conditions that could cause a wildfire.
7. Be prepared to evacuate.

During A Wildfire:

Listen - have a battery-operated radio available to keep up on news reports, weather and evacuation routes.

Evacuate? – if you are told to evacuate - do so immediately! *(see section*

on EVACUATION), and IF you have time also…

- Secure your home - close windows, vents, doors, etc.
- Turn off utilities and tanks at main switches or valves, if instructed.
- Turn on a light in each room to increase the visibility of your home in heavy smoke.

Head downhill – remember fire climbs uphill since heat rises so always head down when evacuating the area

Food & water - if you prepared ahead, you will have your **Disaster Supplies Kit** handy to GRAB & GO… if not, gather up enough food and water for each family member for at least 3 days or longer!

Be understanding - please realize the firefighters main objective is getting wildfires under control and they may not be able to save every home! Try to understand and respect the firefighters and local officials decisions.

After A Wildfire:

Don't go in there - never enter a fire-damaged area until the authorities say it is okay

Look - watch for signs of smoke or heat in case the fire isn't totally out

Utilities - have an electrician check your household wiring before you turn the power back on and DO NOT try to reconnect any utilities yourself!

Damage - look for structural damage (roof, walls, floors, etc.) since they may be weak

Call for help - your local disaster relief service (Red Cross, Salvation Army, etc.) can help provide shelter, food, or personal items that were destroyed.

Insurance - call your insurance agent and…

- Keep receipts of all clean-up and repair costs (for both insurance and income taxes)
- Do not throw away any damaged goods until an official inventory has been taken by your insurance company

If you rent - contact your landlord since it is the owner's responsibility to prevent further loss or damage to the site

Move your stuff - secure your personal belongings or move them to another location, if possible

What are YOU gonna do about… A Flood?

Floods are the most common natural disaster. Some floods develop over a period of several days, but a flash flood can cause raging waters in just a few minutes! Mudflows are another danger triggered by flooding that can bury villages without warning (especially in mountainous regions).

Everyone is at risk from floods and flash floods, even in areas that seem harmless in dry weather. Always listen to the radio or TV to hear the latest updates. Some other types of radios are the NOAA (National Oceanic and Atmospheric Administration) Weather Radio and Environment Canada's Weatheradio with battery backup and a tone-alert feature that will automatically alert you when a Watch or Warning has been issued.

Before A Flood:

1. Review **FLOOD MITIGATION** tips on page 85.
2. Know the terms used to describe flooding:
   - **Flood watch** - flooding is possible
   - **Flash flood watch** - flash flooding is possible so move to higher ground if in a low-lying area
   - **Flood warning** - flooding is occurring or will occur soon and you may be told to evacuate so listen to the radio or TV for updates
   - **Flash flood warning** - flash flood is occurring so seek higher ground on foot immediately
   - **Urban and Small Stream Advisory** - flooding of small streams, streets and low-lying areas is occurring
3. Ask your local emergency management office *(see Section 4 for State & Provincial listings)* if your property is a "flood-prone" area. You may want to find out what elevation your property is so you can compare that level to flood levels announced by the radio and TV.
4. Also ask your local emergency office about the official flood warning signals and learn what to do when you hear them.
5. Find out if there are dams in your area and if they could be a hazard.
6. Be prepared to evacuate and learn your evacuation routes *(see EVACUATION)*.
7. Create an **Emergency Plan** and a **Disaster Supplies Kit** with your family *(see Sections 1 & 3)*
8. Know how to shut off the electricity, gas, and water at main switches

and valves and teach everyone how to do it!

9. Consider buying flood insurance - flood losses **are not** covered under homeowner's insurance policies! *(See page 85)* Flood insurance is available in the U.S. from the National Flood Insurance Program (NFIP) and there is a waiting period. (Homeowners, renters, and business owners in the U.S. can call NFIP at 1-800-427-4661 to learn more.) Canadians currently do not have a national flood program but contact your insurance representative with questions regarding coverage.

   Did you know…

   … you can buy federal flood insurance through most major private insurance companies and licensed property insurance agents?!

   … you do not have to own a home to have flood insurance as long as your community participates in the **NFIP**?!

   … the **NFIP** offers coverage even if you live in a flood-prone area?!

   … the **NFIP** offers basement and below ground level coverage?!

10. Ask your local building department or emergency management office how to "flood proof" your home.

11. Either videotape or take pictures of your home and personal belongings and store them in a safe place (like a fireproof box or a safety deposit box) along with important papers.

During A Flood (or Heavy Rain):

Be aware - listen to local news reports and watch for flash floods especially if you are near streams, drainage channels and areas known to flood

Get on higher ground - if you are in a low-lying area, get to higher ground

Prepare to evacuate – *(see section on EVACUATION*), but also…

- Secure your home and move important items to upper floors
- Turn off utilities at main switches or valves if instructed by authorities and DO NOT touch electrical equipment if you are wet or standing in water!
- Fill up your car with fuel.

Obey warnings - If road signs, barricades, or cones are placed in areas - OBEY THEM! Most areas have fines for people who ignore these posted warnings, especially if they get stuck or flooded! DO NOT drive around these barricades… find another way to get where you are going!

Things to avoid:

- **moving water** - 6 inches (15 cm) of moving water can knock you off your feet and 2 ft (.6 m) of moving water will float a car!
- **flooding car** - if flood waters rise around your car, get out and move to higher ground if you can do it safely! (Don't try to walk through moving water!)
- **bad weather** - by leaving early enough so you are not trapped
- **flooded areas** - roadways and bridges may be washed-out
- **downed power lines** - extremely dangerous in floods!!

After A Flood (or Heavy Rain):

Things to avoid:

- **flood waters** - stay away from flood waters since it may be contaminated by oil, gasoline or raw sewage or may be electrically charged from underground or downed power lines - wait for local authorities to approve returning to flooded areas
- **moving water** - 6 inches (15 cm) of moving water can knock you off your feet and 2 ft (.6 m) of moving water will float a car!
- **flooded areas** - roadways and bridges may be washed-out or weakened
- **downed power lines** - extremely dangerous and report them to the power company

Obey warnings - If road signs, barricades, or cones are placed in areas - OBEY THEM! Most areas have fines for people who ignore these posted warnings, especially if they get stuck or flooded! DO NOT drive around these barricades… find another way to get where you are going!

Snakes - watch out for snakes in areas that were flooded

Flooded food - throw away food that has come into contact with flood waters since eating it can make you sick!

Drinking water - wait for officials to advise when water is safe to drink!

Wash your hands - wash hands often with clean water and soap since flood waters are dirty and full of germs!

Use bleach – the best thing to use for cleaning up flooded areas is household bleach since it will help kill germs

Listen - continue listening to your battery-powered radio for updates on weather and tips on getting assistance for housing, clothing, food, etc.

Insurance - call your insurance agent to see if you're covered for flooding

What are YOU gonna do about… Hail Storms?

Hail is the largest form of precipitation that begins as tiny ice pellets and grows by colliding with supercooled water droplets as it gets tossed around violently in strong updraft winds. As the pellet continues to be tossed, it builds layer by layer until it becomes so heavy that it drops out of the sky as hailstones.

Hailstone diameters can range from 1/16 of an inch to 5 inches (2 mm to 13 mm) - basically meaning they can range in size from tiny pebbles to golfballs to grapefruits or softballs! The largest hailstone ever recorded in the U.S. weighed 1.67 pounds and 17.5 inch (44 cm) in circumference!

Hail is usually present in powerful storms like tornadoes, thunderstorms and even some winter storms mainly due to the strong winds and rapidly rising air masses needed to form hailstones.

Hail occurs across Canada but more frequently happens in the Canadian Prairies (particularly the Calgary-Medicine Hat area). This region can expect up to 10 hail storms a year and most of the damaging hailstorms generally occur from May to October. The U.S. averages about 3,000 hail storms each year across the country and a majority of the storms occur between March and June.

The worst hailstorm in Canadian history hit Calgary, Alberta in September 1991. The 30-minute downpour caused almost $400 million in insurance claims devastating crops, property and livestock. In 1996 Alberta started a hail suppression program using aircraft that fly over developing storms and seed clouds with silver iodide particles to reduce the size of the hailstones.

Before a Hail Storm:

Since hail storms are pretty localized events, it is difficult to prepare for "hail", however please review the other topics that create hail storms (Thunderstorms, Tornadoes and Winter storms) to learn what to do and how to protect yourselves during these events!

1. Listen for local radio or TV weather forecasts and updates.

2. If possible, secure your vehicles in a garage or under substantial covering.
3. Bring pets and livestock in to some type of shelter for their safety.
4. Stay inside until the entire storm system passes.

During a Hail Storm:

Listen - listen to the radio or TV for more information for updates on weather conditions and other types of warnings

IF INDOORS – stay inside until the storm passes and don't try to go out and protect your property!

IF OUTDOORS - take shelter under the strongest structure you can find (especially if hailstones are large!)

IF IN A VEHICLE - carefully pull over to the shoulder and seek shelter under an overpass or the closest substantial structure available

After a Hail Storm:

Listen - continue listening to the radio or TV for updates on weather

Check it out - check for damage to trees and shrubs because if they are damaged, your roof is most likely damaged too. Also check your vehicles and structures for damage but don't put yourself in danger if storms are still active!

Cover it up - cover up holes in your roof and broken windows in your car and home to keep water out

Insurance - Call your insurance agent to set up a visit to your home or to take your vehicle down for inspection

What are YOU gonna do about…
Hazardous Materials?

Chemical plants are one source of hazardous materials, but there are many others that exist in both industries and homes. There are about 38,000 hazardous materials waste sites in the U.S. and many communities have a Local Emergency Planning Committee (LEPC) that keeps local planners, companies and members of the community informed of potential risks.

We [the public] should all learn more about hazardous materials and how they can affect our lives.

Before a Hazardous Materials Disaster:

1. Ask your local fire department about emergency warning procedures:
   - **Outdoor warning sirens or horns** - ask what they mean and what to listen for
   - **Emergency Alert System (EAS)** - information and alerts via TV and radio
   - **"All-call" telephoning** - an automated system for sending recorded messages via telephone
   - **Residential route alerting** - messages announced from vehicles equipped with public address systems (loud speakers on top of car or van)
2. Ask your Local Emergency Planning Committee (LEPC) or emergency management office about community plans for responding to hazardous materials accident at a plant or a transportation accident involving hazardous materials.
3. Ask your LEPC where large quantities of extremely hazardous substances are stored and where they are used.
4. Use the LEPC's information to see if you and your family are at risk - especially if you are close to freeways, railroads, or factories which produce or transport toxic waste.
5. Arrange a neighborhood tour of industries that produce or transport toxic waste and include neighbors, local officials and the media.
6. Be prepared to evacuate *(see EVACUATION section)*.

During a Hazardous Materials Disaster:

Call for help - if you see a hazardous materials accident, call 9-1-1, the local emergency number, or the fire department

Listen - listen to the radio or TV for more information, especially if you hear a warning signal

IF INDOORS – stay inside!

- Close your windows
- Seal gaps under doorways and windows with wet towels and duct tape
- Turn off A/C, fans, and vents so no air is drawn in from the outside

IF OUTDOORS - stay upstream, uphill, or upwind from the disaster since hazardous materials can be carried by wind and water quickly. Try to get at least ½ mile or kilometer away or as far away as possible!

IF IN A VEHICLE - close your windows and shut off the vents to reduce the risk!

Stay away - get away from the accident site to avoid contamination

Evacuate? - if you are told to evacuate… do so immediately! If officials say you have time, close windows, shut vents and turn off attic fans. *(see EVACUATION section)*

What to wear - keep your body fully covered and wear gloves, socks and shoes (even though these may not keep you totally safe, it will help!)

Things to avoid:

- **chemicals** - spilled liquid materials, airborne mist, or solid chemical
- **contaminated food or water** - do not eat or drink any food or water that may have been exposed to the hazardous materials

After a Hazardous Materials Disaster:

Don't go home - until local authorities say it is safe!

Air out - open windows, vents and turn on fans in your home

Listen - keep up with local reports from either the radio or TV

Clean up - a person or item that has been exposed to a hazardous chemical could spread it

- **decontamination** - follow instructions from local authorities since it depends on the chemical. You may need to shower or rinse off items or you may be told to stay away from water - so check first!
- **strange symptoms** - if unusual symptoms show up, get to a hospital or a medical expert right away! Remove any contaminated clothing and put on fresh, loose, warm clothing and listen to local reports on the radio.
- **store shoes & clothes** - put exposed clothing and shoes in tightly sealed containers without touching other materials and call local authorities to ask how to get rid of them
- **tell people you've been exposed** - tell everyone who comes in contact with you that you may have been exposed to a toxic substance!
- **land and property** - ask local authorities how to clean up your land or property

Strange vapors or danger - report any strange vapors or other dangers to the local authorities immediately.

What are YOU gonna do about… Hurricanes, Cyclones & Typhoons?

Hurricane season in North America is generally between June and November. Hurricanes are tropical cyclones with torrential rains and winds of 74 - 155 miles per hour (120 - 250 km/h) or faster. These winds blow in a counter-clockwise direction (or clockwise in the Southern Hemisphere) around a center "eye". The "eye" is usually 20 to 30 miles (32 to 48 km) wide, and the storm may be spread out as far as 400 miles (640 km)!

As the hurricane approaches the coast, a huge dome of water (called a storm surge) will crash into the coastline. Nine out of ten people killed in hurricanes are victims of storm surge! Hurricanes can also cause tornadoes, heavy rains and flooding.

What's with all the different names?

You may have heard different words used to describe different storms depending on where you live in the world. It's very confusing, but hopefully we can help explain all the different names… and hopefully we don't make any weather specialists angry!

Cyclone - an atmospheric disturbance with masses of air rapidly rotating around a low-pressure center… (sort of like a dust devil or a tornado)

Tropical Depression - maximum surface winds of less than 39 miles per hour (62 km/h) over tropical or sub-tropical waters with storms and circular winds

Tropical Storm - the tropical cyclone is labeled a Tropical Storm if winds are between 39-73 mph (62 - 117 km/h) and given a name to track it

Hurricane, Typhoon, Tropical cyclone - surface winds are higher than 74 mph (120 km/h)… and depending on where it is happening will determine what it is called!

Where in the world do they use these names?

(Please note: We are only listing a few major countries or areas for each!)

Cyclone - used in several parts of the world - **Indian Ocean, Australia, Africa, SW and southern Pacific Ocean**

Hurricane - used in the North Atlantic Ocean, the Northeast Pacific Ocean (east of the dateline), or the South Pacific Ocean (east of 160) - **both**

coasts of North America, Puerto Rico, Caribbean Islands, and Central America

Typhoon - used in the Northwest Pacific Ocean west of the dateline - **Guam, Marshall Islands, Japan, Philippines, Hong Kong, coastal Asia**

Tropical cyclone - used in the Southwest Pacific Ocean west of 160E or most of the Indian Ocean - **Australia, Indonesia, Madagascar, Africa, Middle East**

Hurricanes are classed into five categories based on their wind speeds, central pressure, and damage potential:

Category One – winds 74-95 mph (120-153 km/h)
Category Two – winds 96-110 mph (153-177 km/h)
Category Three – winds 111-130 mph (177-209 km/h)
Category Four – winds 131-155 mph (209-250 km/h)
Category Five – winds are greater than 155 mph (250 km/h)

Before a Hurricane:

1. Review **WIND, FLOOD, & LIGHTNING MITIGATION** tips on pages 83 - 87.

2. Know the terms used to describe hurricanes:
   - **Hurricane watch** - a hurricane is possible within 36 hours so listen to TV and radio for updates
   - **Hurricane warning** - a hurricane is expected within 24 hours. You may be told to evacuate (if so, leave immediately) and listen to the radio or TV for updates

3. Listen for local radio or TV weather forecasts and updates. (Some other radios available are Environment Canada's Weatheradio and NOAA's Weather Radio with battery backup and a tone-alert feature that automatically alert you when a Watch or Warning has been issued.)

4. Ask about evacuation plans and if your neighborhood will be told to evacuate. *(see section on EVACUATION)*

5. Create an **Emergency Plan** and a **Disaster Supplies Kit** with your family, especially for the Elderly & Disabled. *(see Sections 1 & 3)*

6. Know how to shut off the electricity, gas, and water at main switches and valves and teach family members how to do it!

7. Make plans to protect your property with storm shutters or board up windows with plywood that is measured to fit your windows. Tape does not prevent windows from breaking! *(See pages 83-85 for tips)*
8. Consider getting flood insurance… well in advance since there is a waiting period! *(see pages 85 & 112 for information on NFIP)*
9. Make a record of your personal property using either a video camera or photographs.

During a Hurricane Watch or Warning:

Listen - have a battery-operated radio available to keep up on news reports and evacuation routes.

Evacuate? – if you are told to evacuate - do so immediately! *(see section on EVACUATION)*, but if you have time also…

- Secure your home - close storm shutters or put up boards on windows, moor your boat, and secure outdoor objects or put them inside since winds will blow them around.
- Turn off utilities at main switches or valves, if instructed.
- Fill up your car with fuel.

Food & water - if you prepared ahead, you will have your **Disaster Supplies Kit** handy to GRAB & GO… if not, gather up enough food and water for each family member for at least 3 days!

Pets - make arrangements for your pets since most shelters will not allow pets *(see Section 1 or call the Humane Society)*

Things to avoid:

- **moving water** - 6 inches (15 cm) of moving water can knock you off your feet and 2 ft (.6 m) of moving water will float a car!
- **flooding car** - if flood waters rise around your car, get out and move to higher ground if you can do it safely! (Don't try to walk through moving water!)
- **bad weather** - leave early enough so you are not trapped
- **flooded areas** - roadways and bridges may be washed-out
- **downed power lines** - extremely dangerous in floods!!

Stay indoors - if you do not evacuate, stay indoors and stay away from windows. A lull in the storm could only be the "eye" and winds can start again! Listen to radio or TV reports.

Limit phone calls - only use the phones in an emergency so it keeps the lines open for local authorities!

After a Hurricane:

Stay put - stay where you are if you are in a safe location and don't return home (if you've been evacuated) until local authorities say it's okay

Listen - continue listening to your battery-powered radio for updates on weather and tips on getting assistance for housing, clothing, food, etc.

Stick together - Keep the family together since this is a very stressful time and try to find chores for the children so they feel like they are helping with the situation.

Things to avoid:

- **flood waters** - stay away from flood waters since it may be contaminated by oil, gasoline or raw sewage or may be electrically charged from underground or downed power lines - wait for local authorities to approve returning to flooded areas
- **moving water** - 6 inches (15 cm) of moving water can knock you off your feet and 2 ft (.6 m) of moving water will float a car!
- **flooded areas** - roadways and bridges may be washed-out or weakened
- **downed power lines** - extremely dangerous and report them to the power company

Flooded food - throw away any food that has come into contact with flood waters since eating it can make you sick!

Drinking water - wait for officials to advise when water is okay to drink!

Wash your hands - wash hands often with clean water and soap

Use bleach – the best thing to use for cleaning up flooded areas is household bleach since it will help kill germs

Insurance - call your insurance agent to set up a visit to your home

RED or GREEN sign in window – After a disaster, Volunteers and Emergency Service personnel should be going door-to-door to check on people. By placing a sign in your window that faces the street near the door, you can let them know if you need them to STOP HERE or MOVE ON (if your home is still standing!). Either use a piece of RED or GREEN construction paper or draw a big RED or GREEN "X" (using a crayon or

marker) on a piece of paper and tape it in the window.

- RED means STOP HERE!
- GREEN means EVERYTHING IS OKAY…MOVE ON!
- Nothing in the window would also mean STOP HERE!

Donations – lots of people want to help victims of a hurricane and here are some tips…

- **Wait & see** - do not donate food, clothing or other personal items unless they are specifically requested
- **Money** - donations to a known disaster relief group, like the Red Cross, is always helpful
- **Volunteers** - if local authorities ask for your help, bring your own water, food and sleeping gear

What are YOU gonna do about…
A Nuclear Power Plant Emergency?

The World Nuclear Association reports as of early 2002 over 430 nuclear power reactors in 31 countries produce over 16 percent of the total electricity generated worldwide.

There are over 100 commercial power plants in the U.S. (in most states across the country) and 20 power stations in Canada (18 in Ontario, 1 in Quebec and 1 in New Brunswick) meaning millions of citizens live within 10 miles (16 km) of an operating plant.

Even though national governments and associations monitor and regulate the construction and operation of these plants, accidents are possible and do happen.

An accident could result in dangerous levels of radiation that could affect the health and safety of the public living near the nuclear power plant, as well as people up to 200 miles (320 km) away depending on winds and weather -- meaning millions and millions of North Americans could potentially be affected!

How is radiation detected?

You cannot see or smell radiation - scientists use special instruments that can detect even the smallest levels of radiation. If radiation is released, authorities from Federal and State or Provincial governments and the utility will monitor the levels of radioactivity to determine the potential danger so they can protect the public.

What is the most dangerous part of a nuclear accident?

Radioactive iodine - nuclear reactors contain many different radioactive products, however, the most dangerous product is iodine which, once absorbed, concentrates on the thyroid. The greatest population that will suffer in a nuclear accident is **children** (including unborn children) since their thyroid is extremely active, but all people are at risk of absorbing radioactive iodine.

How can I be protected from radioactive iodine?

Potassium iodide (KI) - can be purchased over-the-counter now and is known to be an effective thyroid-blocking agent. In other words, it fills up the thyroid with good iodine that keeps the radioactive iodine from being absorbed into our bodies.

What if I am allergic to iodine?

According to the United States Nuclear Regulatory Commission Office of Nuclear Material Safety and Safeguards, the FDA suggests that risks of allergic reaction to potassium iodide are minimal compared to subjecting yourself to cancer from radioactive iodine. You may want to ask your doctor or pharmacist what you should keep on hand in the event of an allergic reaction.

Many European countries stockpile potassium iodide (KI), especially since the Chernobyl incident. Several states within the U.S. are considering or already have stockpiles of KI ready in case of a nuclear power plant accident as part of their Emergency Planning.

Community Planning for Emergencies

Local, state and provincial governments, Federal agencies and the electric utilities have developed emergency response plans in the event of a nuclear power plant accident.

U.S. plans define two "emergency planning zones" (EPZs).

- **Plan One** - covers a 10-mile (16 km) radius from nuclear plant where it is possible people could be harmed by direct radiation exposure

  NOTE: People within this 10-mile (16 km) radius are regularly given emergency information about radiation, evacuation routes, special arrangements for the handicapped, contact names and other materials (usually through brochures, phone books, utility bills, etc.)

- **Plan Two** - covers usually up to a 50-mile (80 km) radius from the plant where accidentally released radioactive materials could contaminate water supplies, food crops and livestock

Canada's Provincial Nuclear Emergency Plans define three "zones". *(Per Ontario Ministry of Public Safety & Security EMO PNEP Backgrounder)*

- **Contiguous Zone** - extends approximately 3 kilometres from the nuclear facility
- **Primary Zone** - extends approximately 10 kilometres from the nuclear facility site
- **Secondary Zone** - extends approximately 50 kilometres from the nuclear facility

3 Ways to Reduce Radiation Exposure

DISTANCE - the more distance between you and the source of radiation, the less radiation you will receive so that's why in a serious nuclear accident you are told to evacuate!

SHIELDING - heavy, dense materials between you and radiation is best so this is why you want to stay indoors since the walls in your home should be good enough to protect you (in some cases… so listen to radio and TV to see if you need to evacuate!)

TIME - most radioactivity loses its strength rather quickly so by limiting your time near the source of radiation it reduces the amount you receive.

Please note: Another type of accident involving possible nuclear radiation exposure may be a "weapon of mass destruction" or WMD. This topic is briefly covered in the next section called **TERRORISM**. The below may be useful in the event of a nuclear WMD event so please review both sections, but always listen to local authorities since they will provide instructions to the public for that specific incident.

Before a Nuclear Power Plant Emergency:

1. Know the terms used to describe a nuclear emergency: **U.S.** / **(Canada)**
   - **Notification of Unusual Event / (Reportable Event)** - a small problem has occurred at the plant. No radiation leak is expected. Federal, state/provincial and county/municipal officials will be told right away. No action on your part will be necessary.
   - **Alert / (Abnormal Incident)** - a small problem has occurred, and small amounts of radiation could leak inside the plant. This will not affect you. You should not have to do anything.
   - **Site Area Emergency / (Onsite Emergency)** - a more serious problem… small amounts of radiation could leak from the plant. If necessary, officials will act to ensure public safety. Area sirens may be sounded and listen to your radio or TV for information.
   - **General Emergency / (General Emergency)** - the MOST serious problem… radiation could leak outside the plant and off the plant site. The sirens will sound so listen to local radio or TV for reports. State/Provincial and county/municipal officials will act to assure public safety and be prepared to follow their instructions!
2. Learn your community's warning system and pay attention to "test" dates so you can find out if you can HEAR the sirens! Nuclear power

plants are required to install sirens and other warning devices to cover a 10-mile (16 km) area around the plant. (If you live outside the 10-mile [16 km] area you will probably learn of the event through your local TV and radio stations so just be aware that winds and weather can impact areas as far as 200 miles [320 km] away!!)

3. Ask the power company that operates the nuclear power plant for brochures and information (which they or government sends automatically to people within a 10-mile [16 km] radius of the plant).
4. Learn the emergency plans for schools, day cares, nursing homes or other places your family may be and find out where they will go if there is an evacuation.
5. Be prepared to evacuate! *(see section on EVACUATION)*

During a Nuclear Power Plant Emergency:

Stay calm - not all accidents release radiation and may be contained to the plant only!

Listen - to your radio or TV for updates! Local authorities will give specific instructions and information… pay attention to what THEY tell you rather than what is written in this Manual since they know the facts for that specific accident!

Leave if… - evacuate only if you are told to do so by local authorities.

- Grab your **Disaster Supplies Kit** *(see Section 3)*
- Close and lock home doors and windows and close fireplace damper
- Close car windows and vents and use "re-circulating" air while in the car.
- Keep listening to radio for evacuation routes and instructions.

As long as you are NOT told to evacuate, do the following…

IF INDOORS - you are not told to evacuate, stay inside!

- Close doors and windows and your fireplace damper.
- Turn off air conditioner, ventilation fans, furnace and other air intakes (that pull in air from outside)
- Go to a basement or underground area (if possible).
- Keep a battery-operated radio with you to hear updates.
- Stay inside until authorities tell you it is safe to go out!

IF OUTDOORS - Get indoors as soon as possible!

- Cover your mouth and nose with a cloth or handkerchief.
- Once inside, remove clothing, take a good shower and put on fresh clothing and different shoes. Put the clothes and shoes you were wearing in a plastic bag, seal it and store it out of the way! Local authorities can tell you what to do with them.

IF IN A VEHICLE - keep windows up, close vents, use "recirculating" air and listen to radio for updates.

Food - put food in covered containers or in the refrigerator, and any food that was not in a covered container should be washed first

Pets & livestock - get them indoors or in shelters with clean food and water that has not been exposed to air-borne radiation (food and water that has been stored), especially milk-producing animals

Take your iodine - IF radioactive iodine has been released into the air from the power plant accident, some states *may* decide to provide KI pills (mentioned at the beginning of this section) to people in a 10-mile radius. This is at the option of state and local government unless you prepare in advance and keep KI handy for such emergencies.

(NOTE: Take iodine ONLY as directed by state, provincial or local public health authorities and follow instructions on the package exactly!)

After a Nuclear Power Plant Emergency:

Listen - continue to listen to local radio and TV for updates

Gardens – local authorities will provide information concerning the safety of farm and homegrown products. You may want to check with your agricultural extension agent for more information.

Crops - unharvested crops are hard to protect but crops that are already harvested should be stored inside, if possible.

Wash & peel - vegetables and fruits that were not already harvested should be washed and peeled before using, but you should check with local officials to confirm if they are safe

Milk - local emergency officials should inspect milk from cows and goats before using

What are YOU gonna do about… Terrorism?

Terrorism is the use of force or violence against persons or property usually for emotional or political reasons or for ransom. Some terrorists try to convince people that their government is powerless to prevent terrorism and use threats to create public fear so they get publicity for their cause.

Most people don't want to think about this type of accident or event and we are not trying to say you need to panic - just be aware that these types of things happen. There is really nothing you can do to prevent most types of terrorism, but you should learn about the various types.

One type of terrorism that we can help prevent is the use of guns and bombs by children and youth against other groups of children at schools. A key solution to stopping this type of violence is through communication, education and awareness – and it starts within the FAMILY!

The Federal Bureau of Investigation categorizes terrorism in two ways:

Domestic terrorism - terrorist activities are directed at certain groups or parts of the government within the U.S. without foreign direction

> Some examples of domestic terrorism include the recent shootings and bomb threats at schools, the Oklahoma City bombing of the Federal Building, and the letters mailed to various groups with a white powdery substance inside (anthrax scares).

International terrorism - terrorist activities are foreign-based by countries or groups outside the U.S.

> Some examples of international terrorism include bombings like the U.S.S. Cole in Yemen and U.S. Embassies in other countries, the incidents at the Pentagon and the World Trade Center, hostage situations with civilians and military personnel in various countries, or threats with weapons of mass destruction.

Most of the terrorist attacks we hear about involve bombs, guns, kidnappings and hijackings, but another form of terrorism includes biological, chemical or nuclear agents used as weapons of mass destruction.

Biological agents - infectious microbes (tiny life forms) or toxins used to produce illness or death in people, animals or plants and can be inhaled or swallowed (such as anthrax)

Chemical agents - poisonous gases, liquids or solids that can kill or slow down or weaken people, destroy livestock or crops and can be absorbed through the skin or inhaled (such as mustard gas or nerve gas).

In either a chemical or biological attack, the local authorities will instruct the public on what to do and any exposure to either agent requires immediate attention with professional medical staff!

Weapons of mass destruction (WMD) - chemical, biological, radiological, or nuclear weapons *(see pages 124-128 for tips on nuclear accidents)*. In the event of a terrorist threat against North America with WMD, there are officials from all levels of government responsible for employing and equipping WMD terrorism response units to manage the situation. It is critical the general public listen to officials' instructions.

** Please see **APPENDIX C** to review a "County Emergency Preparedness Terrorism Emergency Operations Outline" contributed by South Carolina's Charleston County Emergency Preparedness Department. **

Before a Terrorist Attack:

BE AWARE! - you should always be aware of your surroundings!

Stay current on alerts - Canada's OCIPEP *(pages 164-167)* and U.S.'s Office of Homeland Security *(APPENDIX A)* post alerts on the Internet.

Know the targets - terrorists usually pick targets that bring very little damage to themselves and areas that are easy to access by the public (like international airports, government buildings, major events, schools, etc.)

Things to watch out for:

- **unknown packages** - DO NOT accept a package or case from a stranger
- **unattended bags** - DO NOT leave your bags or purses alone (especially when traveling) and NEVER ask strangers to watch your stuff!
- **emergency exits** - always be aware of where Emergency EXITS are… just casually look around for the signs since most are marked well in public places

Bomb Threat - could be received on the telephone or in the mail

- If you ever receive a bomb threat, get as much information from the caller as possible.
- Try to keep them on the telephone as long as you can and write down everything that is said! (Since you will be nervous or scared, your notes will be very helpful!)
- Notify the police and the building management.
- Stay away from any strange packages - don't touch anything!
- Evacuate the building, keep the sidewalks clear and stay away from windows.

NOTE: It is too difficult to know exactly what to do **DURING** and **AFTER** a terrorist attack since there are so many kinds and many unknowns, so we are just focusing on a "bomb" disaster in a building according to information from FEMA. During ANY type of terrorist attack listen to local officials instructions on the radio or TV and follow their instructions without any hesitation!!

During a Building Explosion:

Get out - get out of the building as quickly and calmly as possible!

Things to watch out for:

- **Falling objects** - if things are falling off bookshelves or from the ceiling, get under a sturdy table or desk
- **Fire** - stay low to the floor (crawl or walk like a duck)
  Only use the stairs (do not use elevators)!
  Check doors before opening (If HOT, DO NOT open - find another exit!)

After a Building Explosion:

If you are trapped in an area:

- **light** - use a flashlight, if you have one – don't use matches or lighters in case of gas leaks
- **be still** - try to stay still so you won't kick up dust
- **breathing** - cover your mouth with a piece of clothing
- **make noise** - tap on a pipe or wall so rescuers can hear you (shout only as a last resort since it can cause you to inhale dangerous amounts of dust)

Rescuing others - untrained persons should not try to rescue people who are inside a collapsed building… wait for emergency personnel to arrive – then, if they need you, they will ask!

What are YOU gonna do about… A Thunderstorm?

Thunderstorms are very common… in fact, at any given moment, nearly 1,800 thunderstorms can be in progress over the face of the earth! The U.S. usually averages about 100,000 thunderstorms each year.

Lightning always comes with a thunderstorm since that is what causes thunder! If you have ever heard someone say lightning never strikes the same place twice… WRONG… it can! In fact, lightning OFTEN strikes the same place several times during one storm. Lightning actually comes from the ground up into the air and back down - we just see it as it comes down so it looks like it's coming from the clouds. Severe thunderstorms can also bring heavy rains, flooding, hail, strong winds, tornadoes and microbursts (a sudden vertical drop of air)!

Before a Thunderstorm:

1. Review **WIND, FLOOD, & LIGHTNING MITIGATION** tips on pages 83 - 87.
2. Know the terms used to describe major thunderstorms:
   - **Severe Thunderstorm Watch** - severe thunderstorms are possible
   - **Severe Thunderstorm Warning** - severe thunderstorms are occurring
3. If you hear thunder, you are close enough to the storm to be struck by lightning. Get to safe shelter immediately!
4. Unplug appliances, if possible (even if you have a surge protector) and it's wise to move the plug away from the outlet.

During a Thuderstorm:

Listen to battery operated radio for local reports on the storm (especially severe storms which can cause tornadoes!)

IF INDOORS - stay inside until the storm passes.

- telephone - it is best not to use the telephone since phone lines can conduct electricity
- don't shower - it sounds weird, but it is best to avoid taking a bath or shower since the water can carry an electrical charge if lightning strikes near your home

IF OUTDOORS - try to get to safe shelter quickly.

- Move away from tall things (trees, towers, fences, telephone or power lines) since they attract lightning.
- If you are surrounded by trees while outside, take shelter under the shorter trees
- Get to a low lying area (like a ditch or a valley), but watch out for flash floods
- Stay away from metal things (umbrellas, baseball bats, bicycles, fishing rods, wire fences, etc) since they can attract lightning
- **Be small** - make yourself a small target by crouching down and put your hands on your knees (and do not lie flat on the ground since that makes you a bigger target!)

IF IN A BOAT - get to land and to shelter quickly! Water is extremely dangerous when there's lightning!

IF IN A VEHICLE - keep windows closed and stay out of a convertible, if possible (mainly because the top is usually fabric and that could make you the highest target if lightning strikes!)

Hairy sign - if you feel your hair stand on end and feel tingly (which means lightning is about to strike)… crouch down and bend forward putting your hands on your knees (be small)! Do not lie flat on the ground… it makes you a bigger target!

If someone is struck by lightning:

- the victim does not carry electrical charge and CAN be touched safely
- call 9-1-1 or your local EMS (emergency) telephone number
- victim will have 2 wounds - an entrance and an exit burn and give first aid if needed *(see ELECTRICAL BURNS)*

After a Thunderstorm:

Things to avoid:

- **flooded areas** – stay away from flood waters since it may be contaminated by oil, gasoline or raw sewage or may be electrically charged from underground or downed power lines or lightning – wait for authorities to approve returning to flooded areas
- **moving water** – 6 inches (15 cm) of moving water can knock you off your feet and 2 ft (.6 m) of moving water will float a car!
- **storm-damaged areas**
- **downed power lines**

What are YOU gonna do about…

A Tornado?

The U.S. has more tornadoes than anywhere else in the world, with sightings in all 50 states. Canada is # 2 in volume of tornadoes and has several high risk areas including Alberta, southern Ontario, southwestern Quebec and a band across southern Saskatchewan and Manitoba to Thunder Bay, Ontario. British Columbia and western New Brunswick are also tornado zones.

Most injuries or deaths caused by tornadoes are from collapsing buildings, flying objects or trying to outrun a twister in a vehicle. Tornadoes can also produce violent winds, hail, lightning, rain and flooding.

Did you know…

… tornadoes can produce wind speeds as high as 311 mph (500 km/h), move across the ground at speeds up to 75 mph (120 km/h), and reach as high as 40,000 feet (12,200 m) above the ground?!

… the U.S. has more tornadoes than any other place in the world and averages 1,000 tornado sightings each year?!

… heavy items (like pieces of roof) can be thrown for many miles and lighter objects (like a piece of paper) can be scattered up to 200 miles (320 km) away?!

… the force of a tornado can rip the bark off trees, tear clothes off people, and pluck the feathers off chickens?!

Before a Tornado:

1. Review **WIND, FLOOD, & LIGHTNING MITIGATION** tips on pages 83 - 87.
2. Know the terms used to describe tornado threats:
   - **Tornado watch** - a tornado is possible so listen to your TV or radio for updates
   - **Tornado warning** - a tornado has been sighted so take shelter immediately and keep a battery operated radio with you for updates
   - **Severe Thunderstorm Watch** - severe thunderstorms are possible
   - **Severe Thunderstorm Warning** - severe thunderstorms are occurring

3. Ask your local emergency management office *(see Section 4)* or your local Red Cross chapter about the tornado threat in your area.
4. Also ask your local emergency office about the community warning signals and learn what to do when you hear them.
5. Always have a battery-operated radio with extra batteries so you can hear any alerts.
6. Know what county or area you live in so you can listen for that name on the radio updates.
7. Find the best place to seek shelter underground (like a basement, a safe room or storm cellar). If you don't have underground shelter, then the next best place is in the middle section of the building or a hallway on the lowest floor or a bathroom or closet.
8. Know the locations of shelters in places where you and your family spend time (schools, nursing homes, buildings, etc.)
9. Practice going to your shelter with your family and "duck and cover" (use your hands and arms to protect your head and stay down low).
10. Either videotape or take pictures of your home and personal belongings and store copies of them and other important papers in a place away from your home (like a safety deposit box).

During a Tornado:

Listen - to local news reports on a battery-operated radio for updates on tracking the twister

Take cover - wherever you are, if you hear or see a tornado coming, take cover immediately!

IF IN A TRAILER OR MOBILE HOME – GET OUT!!!

- get to a stronger shelter… or …
- stay low to the ground in the nearest dry ditch or culvert with your hands covering your head.
- If you hear or see water in the ditch, move quickly to a drier spot in case lightning strikes nearby.

IF INDOORS - get to a safe place right away!

- In house or small building - go to basement or storm cellar or get to a room in the middle of the building on the lowest floor (like a

bathroom, closet, or hallway) and get under something sturdy (like a table) and stay there until the danger has passed! If possible, put a mattress or heavy covers over you to help protect you!

- In a school, nursing home, hospital, factory or shopping center - go to the designated shelter areas (or interior hallways on the lowest floor) and stay away from windows and open areas.
- In a high-rise building - go to a small, interior room or hallway on the lowest floor possible and avoid windows.

IF OUTDOORS - try to take shelter in a nearby basement or sturdy building! If you cannot get indoors, LIE FLAT in a dry ditch, ravine or culvert with your hands covering your head. (If you hear or see water, move quickly to drier spot in case lightning strikes nearby!)

IF IN A VEHICLE - GET OUT and take shelter in a building or lie flat in a ditch with your hands covering your head! DO NOT try to out-drive a tornado! You never know which direction a tornado is going to go since it can change directions and it moves too fast!

After a Tornado:

Watch out - look for broken glass and downed power lines

Injured people - do not try to move injured people unless they are in danger and call for help immediately

Don't go in there - try to stay out of buildings or homes that are damaged until it is safe to enter and wear sturdy work boots and gloves

What are YOU gonna do about… A Tsunami?

A tsunami (pronounced soo-nam'-ee) is a series of huge, destructive waves caused by an undersea disturbance from an earthquake, volcano, landslide, or even a meteorite. As the waves approach the shallow coastal waters, they appear normal and the speed decreases. Then, as the tsunami nears the coastline, it turns into a gigantic, forceful wall of water that smashes into the shore with speeds exceeding 600 miles per hour (965 km/h)! Usually tsunamis are about 30 feet (9 m) high but extreme ones can be as high as 100 feet (30 m)!

A tsunami is a series of waves and the first wave may not be the largest one, plus the danger can last for many hours after the first wave hits. During the past 100 years, more than 200 tsunamis have been recorded in the Pacific Ocean alone and Japan has suffered a majority of them due to earthquakes.

Did you know…

… a tsunami is not a tidal wave since it has nothing to do with the tide?!
… another name used to describe a tsunami is "harbor wave" since "tsu" means harbor and "nami" means wave in Japanese?!
… sometimes the ocean floor is exposed near the shore since a tsunami can cause the water to recede or move back before slamming in to shore?!
… boats, rocks and other debris can be moved inland hundreds of feet with massive power that can destroy everything in its path?!
… tsunamis can travel up streams and rivers that lead to the ocean?!

Before a Tsunami:

1. Review **WIND and FLOOD MITIGATION** tips on pages 83 - 85.
2. Listen to tsunami warnings - they mean a tsunami exists! Pay attention to local reports on TV or radio and do what officials say for your own safety!
3. If near the water, watch for a noticeable rise or fall in the normal depth of coastal water, which is an advance warning of a tsunami.

4. If you feel an earthquake in the Pacific Coast area (from Alaska down to Baja), listen to the radio for tsunami warnings.
5. Don't be fooled by the size of one wave - more will follow… a small tsunami at one beach can be a giant wave a few miles away!
6. Be ready to evacuate *(see section on EVACUATION)*

During a Tsunami:

Leave - if you are told to evacuate, DO IT! Remember - a tsunami is a series of waves and the first one may be small but who knows what the rest will bring!

IF ON A SHORE - Get off the shore and get to higher ground immediately! Stay away from rivers and streams that lead to the ocean! You cannot outrun a tsunami and once you see the wave, it's too late!

IF ON A BOAT - it depends where you are… either get to land or go further out to sea!

- in port - you may not have time to get out of the port or harbor and out to sea so check with authorities to see what you should do (smaller boats may want to dock and get to land quickly)
- in open ocean - DO NOT return to port if a tsunami warning has been issued since the wave action is barely noticeable in the open ocean! Stay out in the open sea or ocean until authorities advise the danger has passed.

After a Tsunami:

Listen - whether you are on land or at sea, local authorities will advise when it is safe to return to the area so listen to radio and TV updates

Watch out - look for downed power lines, flooded areas and other damage caused by the waves

Don't go in there - try to stay out of buildings or homes that are damaged until it is safe to enter and wear sturdy work boots and gloves when working in the rubble

Strange critters – be aware that the waves may bring in many critters from the ocean (marine life) so watch out for pinchers and stingers!

RED or GREEN sign in window – After a disaster, Volunteers and Emergency Service personnel may be going door-to-door to check on people. By placing a sign in your window that faces the street near the door, you can let them know if you need them to STOP HERE or MOVE ON. Either use a piece of RED or GREEN construction paper or draw a big RED or GREEN "X" (using a crayon or marker) on a piece of paper and tape it in the window.

- RED means STOP HERE!
- GREEN means EVERYTHING IS OKAY…MOVE ON!
- Nothing in the window would also mean STOP HERE!

What are YOU gonna do about… A Volcano?

A volcano is a mountain that opens downward to a reservoir of molten rock (like a huge pool of melted rocks) below the earth's surface. Unlike mountains, which are pushed up from the earth's crust, volcanoes are formed by their buildup of lava, ash flows, and airborne ash and dust. When pressure from gases and the molten (melted) rock becomes strong enough to cause an explosion, it erupts and starts to spew gases and hot rocks through the opening.

Volcanic eruptions can hurl hot rocks for at least 20 miles (32 km) and eruptions can cause sideways blasts, lava flows, hot ash flows, landslides, mudflows, and avalanches. They can also cause earthquakes, thunderstorms, flash floods, wildfires, and tsunamis!

Fresh volcanic ash, made of crushed or powdery rock, can be acidic (to burn), gritty, glassy and smelly. Lung damage to small infants, older people or people with breathing problems can be caused by the combination of the burning gas and ash.

Sometimes volcanic eruptions can drive people from their homes forever.

Did you know…

… more than 80 percent of the Earth's surface above and below sea level was formed by volcanic eruptions?!

… there are more than 850 active volcanoes around the world and more than two-thirds of them are part of the "Ring of Fire" (a region that encircles the Pacific Ocean)?!

… volcanic eruptions can impact our global climate since they release gases like sulfer and carbon dioxide into the earth's atmosphere?!

… the primary danger zone around a volcano covers about a 20-mile (32 km) radius?!

… floods, airborne ash or dangerous fumes can spread 100 miles (160 km) or more?!

… a pyroclastic flow is an avalanche of ground-hugging hot rock, ash and gas that races down the slope of a volcano at speeds of 60 mph (97 km/h) with temperatures of nearly 1,300 degrees Fahrenheit (704 degrees Celsius)?!

… Alaska has over 40 active volcanoes?!

Before a Volcanic Eruption:

1. Review the **MITIGATION** tips on pages 83 - 88.
2. Learn about your community's warning systems and the evacuation routes, and be prepared to follow their instructions.
3. Develop an **Emergency Plan** and have a **Disaster Supplies Kit** ready in case of evacuation or disaster *(see Sections 1 & 3)*. (NOTE: You may want to include goggles or safety glasses and masks for each family member in your Kit to protect their eyes and lungs from ash!)
4. Avoid visiting volcanoes unless authorities have approved safe viewing sites.

During a Volcanic Eruption:

Listen - do what local authorities say, especially if they say evacuate!

Leave - if you are told to evacuate, DO IT! Don't think you are safe to stay at home and watch the eruption… the blast can go for many, many miles and can cause wildfires and many other hazards!

Watch out - eruptions cause many other disasters…

- **flying rocks** - rocks can be hurled for miles at extremely fast speeds!
- **mudflows or landslides** - they can move faster than you can walk or run
- **lava flows** - burning liquid rock and nothing can stop it
- **gases and ash** - try to stay upwind since winds will carry these and they are harmful to your lungs
- **fires** - hot rocks and hot lava will cause buildings and forests to burn

IF INDOORS - stay inside but be aware of ash, rocks, mudflows or lava!

- Close all windows, doors, and dampers to keep out ash fall
- Bring pets inside (and if time permits, move livestock into closed shelters)
- Listen for creaking on your rooftop (in case ash flow gets too heavy and could cause it to collapse!)

IF OUTDOORS - try to get indoors, if not…

- Try to stay upwind so the ash and gases are blown away from you
- Watch for falling rocks and if you get caught in a rockfall, roll into a ball to protect your head!
- Get to higher ground and avoid low-lying areas since poisonous gases can collect there and flash floods could happen
- Use a dust-mask or a damp cloth over face to help breathing, wear long-sleeved shirts and pants, and use goggles or safety glasses to protect your eyes

IF IN A VEHICLE - try to avoid driving unless it is absolutely required.

- Slow down and keep speed down to 35 mph (56 km/h) or slower, especially because of thick dust
- Shut off your engine if you leave your car and park in garage, if possible (to reduce the amount of ash from getting in it)
- Look upstream before crossing a bridge in case a mudflow or landslide is coming

After a Volcanic Eruption:

Listen - local authorities will say when it is safe to return to the area (especially if you had to evacuate) and give any other updates

Water - check with local authorities before using water, even if there was just ash fall (since the gases and ash can contaminate water reserves)

What to wear - if you must be around the ash fall, you should wear long sleeve shirts, pants, sturdy boots or shoes, gloves and keep your mouth and nose covered with a dust-mask or damp cloth

Ash - remove ash buildup from rooftops and rain gutters since it is very heavy and be careful when you are around ash since it is bad for your lungs

What are YOU gonna do about… Winter Storms & Extreme Cold?

Winter storms can last for many days and include high winds, freezing rain, sleet or hail, heavy snowfall and extreme cold. These types of winter storms can shut down a city or area mainly due to blocked roads and downed power lines. People can be stranded in their car or trapped at home for hours or days, but there are many other hazards that come with these storms.

The leading cause of death during winter storms is automobile or other transportation accidents and the second leading cause of death is heart attacks. Hypothermia (or freezing to death) is very common with the elderly who sometimes die inside their homes because it is so cold.

The best way to protect yourself from a winter disaster is to plan ahead before the cold weather begins. Take advantage of spring sales when winter items are cheaper so you are ready for next winter!

Before a Winter Storm:

1. Review **WIND** and **WINTER STORM MITIGATION** tips on pages 83 - 89.
2. Know the terms used to describe winter conditions:
   - **Freezing rain** - rain that freezes when it hits the ground, creating a coating of ice on the roads and walkways
   - **Hail** - rain that turns to ice while suspended and tossed in the air from violent updrafts in a thunderstorm
   - **Sleet** - rain that turns to ice pellets before reaching the ground (which can cause roads to freeze and become slippery)
   - **Winter Weather Advisory** - cold, ice and snow are expected
   - **Winter Storm Watch** - severe winter weather such as heavy snow or ice is possible within a day or two
   - **Winter Storm Warning** - severe winter conditions have begun or are about to begin
   - **Blizzard Warning** - heavy snow and strong winds will produce a blinding snow, near zero visibility, deep drifts and life-threatening wind chills
   - **Frost/Freeze Warning** - below freezing temperatures are expected

3. Put together emergency supplies along with a **Disaster Supplies Kit** *(see Section 3)* and add the following items at home for winter storms:
   - **rock salt** - good for melting ice on walkways
   - **sand or kitty litter** - to improve traction
   - **emergency heating equipment and fuel** - good to have a backup in case power is cut off
     Fireplace - gas fireplace or a wood burning stove or fireplace
     Generator – gas or diesel models available
     Kerosene heaters – ask you Fire Department if they are LEGAL in your community and ask about safety tips in storing fuel!
     Charcoal - NEVER use charcoal indoors since the fumes are deadly in a contained room but it's fine for using outdoors!!
   - **extra wood** - keep a good supply in a dry area
   - **extra blankets** – either regular blankets or emergency blankets (about the size of a wallet)

4. Make sure your home is "winterized" (see tips on pages 88-89)

During a Winter Storm:

Listen - get updates from radio and TV weather reports

What to wear - dress for the season…
- **layer** - it is much better to wear several layers of loose-fitting, light-weight, warm clothing than one layer of heavy clothing (and the outside garment should be waterproof)
- **mittens** - mittens are warmer than gloves
- **hat** - most of your body heat is lost through the top of your head
- **scarf** - cover your mouth with a scarf or wrap to protect your lungs from the cold air

Don't overdo it - be careful when shoveling snow or working outside since the cold can put added strain on your heart and cause a heart attack (even in children!)

Watch for signs - playing or working out in the snow can cause exposure so look for signs of…
- **Frostbite** - loss of feeling in your fingers, toes, nose or ear lobes or they turn really pale
- **Hypothermia** - you start to shiver a lot, slow speech, stumbling, or feel very tired… in either case, get inside quickly and get medical help!

Winter Driving Tips

Driving - If you must travel, consider taking public transportation. If you must drive, travel during the day, don't travel alone, and let someone know where you are going. Stay on the main roads and avoid taking back roads.

Winterize car - Make sure you have plenty of antifreeze and snow tires (or chains or cables at least). Keep your gas tank as full as possible during cold weather.

Winter Kit - Carry a "winter" car kit in the trunk *(see CAR KIT in Section 3)* and also throw in…

- **warm things** – mittens, hat, emergency blanket, sweater, water-proof jacket or coat
- **cold weather items** - windshield scraper, bag of road salt or sand
- **emergency items** - brightly colored cloth or distress flag, booster cables, emergency flares, tow chain or rope
- **miscellaneous** - (food, water, etc. is mentioned in **CAR KIT**)

Stranded - if you get trapped in your car by a blizzard or break down…

- **get off the road** - if you can drive, pull the car off the main road onto the shoulder
- **hazard lights** - turn on your hazards and hang a bright cloth or distress flag on the antenna
- **stay in car** - stay inside until help arrives (your **CAR KIT** will provide food and water and other comforts if you planned ahead!)
- **start your car** - turn on the car's engine for about 10 minutes each hour (open a window slightly for ventilation of fumes) and run the heater and turn on the dome light (while it is running)
- **if you walk** - if you do walk away from your car, make sure you can see the building or shelter (no more than 100 yards or 10 m)
- **exercise** - DO NOT overdo it, but light exercises can help keep you warm
- **sleeping** - if you are not alone, take turns sleeping so someone can watch for rescue crews
- **exhaust pipe** - check the exhaust pipe now and then and clear out any snow

After a Winter Storm:

Restock - stock up on any items you used right after the storm clears so you are ready for the next one!

Tips on Shelter Living During an Emergency

Taking shelter during a disaster could mean you have to be somewhere for several hours or possibly several days or weeks! It could be as simple as going to a basement during a tornado warning or staying home without electricity or water for several days during a major storm.

In many emergencies, the Red Cross and other organizations set up public shelters in schools, city or county buildings and churches. While they often provide water, food, medicine, and basic sanitary facilities, you should plan to have your own supplies - especially water *(see Section 3 for **DISASTER SUPPLIES KIT**)*.

No matter where you are or whom you are with, you should use the following tips while staying in a shelter during an emergency:

Don't leave - stay in your shelter until local authorities say it's okay to leave. Realize that your stay in your shelter can range from a few hours to two weeks according to FEMA! In some cases it might even be longer!

Take it outside - restrict smoking to well-ventilated areas (outside if it is safe to go out) and make sure the smoking materials are disposed of safely!

Behave - living with many people in a confined space can be difficult and unpleasant but you must cooperate with shelter managers and others in the shelter

24-hour watch - take turns listening to radio updates and keep a 24-hour communications and safety watch going

Toilet - bathrooms may not be available so make sure you have a plan for human waste *(see Section 3-TIPS ON SANITATION OF HUMAN WASTE)*

Pets - public shelters do not allow pets due to health reasons so you will have to make arrangements to keep them somewhere else. (You can try the Humane Society or local Animal Shelter - if they are still functioning after a disaster!)

Tips on Recovering From A Disaster

Unless you have been in a disaster before, it is hard to imagine how you will handle the situation. Coping with the human suffering and confusion of a disaster requires a certain inner strength. Disasters can cause you to lose a loved one, neighbor or friend or cause you to lose your home, property and personal items. The emotional effects of loss and disruption can show up right away or may appear weeks or months later.

We are going to briefly cover "emotional" recovery tips then cover some "general" recovery tips on what to do AFTER a disaster. Remember -- people *can* and *do* recover from all types of disasters, even the most extreme ones, and you can return to a normal life.

Emotional Recovery Tips – Handling Emotions

Since disasters usually happen quickly and without warning, they can be very scary for both adults and children. They also may cause you to leave your home and your daily routine and deal with many different emotions, but realize that a lot of this is normal human behavior. It is very important that you understand no matter what the loss is… there is a natural grieving process and every person will handle that process differently.

Some general reactions to disasters:

Right after disaster – shock, fear, disbelief, hard time in making decisions, refusing to leave home or area, finding help or helping others

Days, weeks or months after disaster – anger or moodiness, depression, loss of weight or change in appetite, nightmares, crying for "no reason", isolation, guilt, anxiety, domestic violence

Additional reactions by children - thumb sucking, bed-wetting, clinging to parent(s) or guardian, won't go to bed or school, tantrums (crying or screaming), problems at school

Please note: If any of your disaster reactions seem to last for quite some time, please seek professional counseling to help deal with the problem. There is nothing wrong with asking for help in recovering emotionally!

Tips for Adults & Kids

Deal with it - recognize your own feelings so you can deal with them properly and responsibly

TALK - talking to others helps relieve your stress and helps you realize you are not alone… other victims are struggling with the same emotions… especially your own family! And don't leave out the little kids… let them talk about their feelings and share your feelings with them.

Accept help - realize that the people who are trying to help you want to help you so please don't shut them out or turn them away!

Time out - whenever possible, take some time off and do something you enjoy to help relieve the stress… and do something fun with the whole family like a hike, a picnic or play a game.

Rest - listen to your body and get as much rest as possible. Stress can run you down so take care of yourself and your family members.

Slow down - Don't feel like you have to do everything at once and pace yourself with a realistic schedule.

Stay healthy - Make sure everyone cleans up with soap and clean water after working in debris. Also, drink lots of clean water and eat healthy meals to keep up your strength.

Work out - physical activity like running or walking is good to release energy and stress

Hug - a hug or a gentle touch (holding a hand or an arm) is very helpful during stressful times

Be an example - kids look to adults during a disaster so your reactions will impact the kids (meaning if you act alarmed or worried – they will be scared, if you cry – they cry, etc.)

Stick together - keep the family together as much as possible and include kids in discussions and decisions when possible

Draw a picture - ask your kids to draw a picture of the disaster to help you understand how he or she views what happened

Explain - calmly tell your family what you know about the disaster using facts and words they can understand and tell everyone what will happen next so they know what to expect

Reassurance - let your kids and family know that they are safe and repeat this as often as necessary to help them regain their confidence

Praise - recognizing good behavior and praise for doing certain things (even the littlest of things) will help boost the morale

Watch your temper - stress will make tempers rise but don't take out your anger on others, especially kids. Be patient and control your emotions.

Let kids help - including your kids in small chores during the recovery and clean up processes will help them feel like they are part of the team and give them more confidence

Let others know - work with your kids' teachers, day-care staff, babysitters and others who may not understand how the disaster has affected them

General Recovery Tips - AFTER a Disaster

Returning to a Damaged Home:

Listen - keep a battery-operated radio with you for any emergency updates

What to wear – wear sturdy work boots and gloves

Check outside first - before you go inside, walk around the outside to check for loose power lines, gas leaks, and structural damage

Call a professional - if you have any doubts about the safety of your home, contact a professional inspector

Don't go in there - if your home was damaged by fire, do not enter until authorities say it is safe (also don't enter home if flood waters remain around the building)

Use a flashlight - there may be gas or other flammable materials in the area so use a battery-operated flashlight (do not use oil, gas lanterns, candles or torches and do not smoke!)

Watch out - look out for animals, especially snakes (flooding will carry them) and use a stick to poke through debris

Things to check - some things you want to do first…

- Check for cracks in the roof, foundation and chimneys
- Watch out for loose boards and slippery floors
- Check for gas leaks (either by smell or listen for a hissing or blowing sound)
  - Start with the hot water heater
  - Turn off the main gas valve from outside
  - Call the gas company
- Check the electrical system (watch for sparks, broken wires or the smell of hot insulation)
  - Turn off the electricity at the main fuse box or circuit breaker
  - DO NOT touch the fuse box, circuit breaker or wires if in water or you are wet!

- Check appliances after turning off electricity at main fuse and if wet, unplug and let them dry out. Call a professional to check them before using
- Check the water and sewage system and if pipes are damaged, turn off the main water valve
- Clean up any spilled medicines, bleaches or gasoline
- Open cabinets carefully since things may fall out
- Look for your valuable items (jewelry and family heirlooms) and protect them
- Try to patch up holes, windows and doors to protect your home from further damage
- Clean and disinfect everything that got wet (bleach is best) since mud left behind by floodwaters can contain sewage and chemicals.
- If your basement is flooded, pump it out slowly (about 1/3 of the water per day) to avoid damage since the walls may collapse if the surrounding ground is still waterlogged
- Check with local authorities about the water since it could be contaminated! Wells should be pumped out and the water tested before using, too
- Throw out food, makeup and medicines that may have been exposed to flood waters and check refrigerated foods to see if they are spoiled. If frozen foods have ice crystals then okay to refreeze
- Call your insurance agent, take pictures of the damage, and keep ALL receipts on cleaning and repairs

Getting Help: Disaster Assistance

Listen - local TV and radio announce where to get emergency housing, food, first aid, clothing and financial assistance after a disaster

Help finding family - The Red Cross maintains a database to help you find your family members, but please do not contact the Red Cross office in the disaster area since they will be swamped!

Agencies that help - The Red Cross is often stationed right at the scene of a disaster to help people with their immediate medical, food and housing needs. Some other sources of help include the Salvation Army, church groups and synagogues and various other Social Service agencies from local, state and provincial governments.

President declares a "Major Disaster" (U.S.) - in severe disasters, the government (FEMA) steps in and provides people with the following:

- Temporary housing
- Counseling

- Low interest loans and grants
- Businesses and farms are also eligible for aid through FEMA.

FEMA's Disaster Application Centers - FEMA will set Centers up at local schools and municipal buildings to manually process applications or they can be taken over the telephone. (The FEMA phone number will be announced by local TV and radio reports.)

I lost my job (in U.S.) - People who lose their job due to the disaster may apply for weekly benefits using Disaster Unemployment Assistance. You should call your local unemployment office or 1-800-462-9029 (TTY: 1-800-462-7585) for registration information.

Legal help (in U.S.) - local members of the American Bar Association Young Lawyers Division offer free legal counseling to low-income individuals after the President declares a major disaster. (FEMA can provide more information at their Disaster Centers or you can call 1-800-525-0321 for assistance.)

Canadian disaster - In the event of a large-scale disaster in Canada, the provincial or territorial government pays out money to individuals and communities in accordance with its provincial disaster assistance program. *(Federal assistance - Disaster Financial Assistance Arrangements [DFAA] is paid to the province or territory... not to individuals and communities as FEMA does in the U.S.!)*

Recovering financially - the American Red Cross and FEMA developed the following list to help you minimize the financial impact of a disaster

- **First things first** - 1) remove valuables only if your residence is safe to enter, 2) try to make temporary repairs to limit further damage, and 3) notify your insurance company immediately!
- **Conduct an inventory** - make sure you get paid for what you lost
- **Reconstruct lost records** - use catalogs, want ads, Blue Books, court records, request old tax forms from the IRS, escrow papers, etc. to help determine value of lost possessions
- **Notify creditors and employers** - let the people you do business with know what has happened
- **File an insurance claim** - get all policy numbers; find out how they are processing claims; identify your property with a sign; file claims promptly, work with adjusters, etc.
- **Obtain loans and grants** - find out if you qualify for emergency financial assistance from the local media reports
- **Avoid contractor rip-offs** - get several estimates; don't rush into anything; ask for proof of licenses, permits and insurance; get

contract in writing; never prepay; get a signed release of lien; check out the contractor with the local Better Business Bureau, etc.

- **Reduce your tax bite** - you may be eligible for tax refunds or deductions but know they can be very complex so you may want to ask an expert for advice

** Note: A detailed brochure called "Recovering Financially After a Disaster" prepared by the National Endowment for Financial Education®, the Red Cross, and FEMA is available on the Red Cross's web site or may be at your local Red Cross chapter. (see Section 4)*

Mitigation (Reducing the Impact for the Next Time)

The last thing you want to think about after a disaster is "what if it happens again"! Before you spend a lot of time and money repairing your home after a disaster, you should find ways to avoid or reduce the impact of the next disaster.

FEMA recommends the following mitigation tips AFTER A DISASTER:

1. Ask your local building department about agencies that purchase property in areas that have been flooded. You may be able to sell your property to a government agency and move to another location.
2. Determine how to rebuild your home to handle the shaking of an earthquake or high winds. Ask your local government, a hardware dealer or a private home inspector for technical advice.
3. Consider the options for flood-proofing your home. Determine if your home can be elevated to avoid future flood damage.
4. Make sure all construction complies with local building codes that pertain to seismic, flood, fire and wind hazards. Make sure the roof is firmly secured to the main frame of the house. Make sure your contractors know and follow the codes. Make sure construction is inspected by a local building inspector.

For more information about mitigation, please see pages 83-90.

Tips on Helping Others in Their Time of Need

A disaster really brings out the generosity of many people who want to help the victims. Unfortunately, sometimes this kindness overwhelms agencies that are trying to coordinate relief efforts so please use the following general guidelines defined by FEMA on helping others after a disaster.

1. In addition to the people you care for on a daily basis, consider the needs of your neighbors and people with special needs.
2. If you want to volunteer your services immediately after a disaster, listen to local news reports for information about where volunteers are needed. Until volunteers are specifically requested, stay away from disaster areas.
3. If you are needed in a disaster area, bring your own food, water and emergency supplies. This is especially important in cases where a large area has been hit since these items may be in short supply.
4. Do not drop off food, clothing or any other item to a government agency or disaster relief organization unless a particular item has been requested. They usually don't have the resources to sort through the donations and it is very costly to ship these bulk items.
5. If you wish, give a check or money order to a recognized disaster relief organization like the Red Cross. They can process the funds, purchase what is needed and get it to the people who need it most. Your entire donation goes towards the disaster relief since these organizations raise money for overhead expenses through separate fund drives.
6. If your company wants to donate emergency supplies, donate a quantity of a given item or class of items (such as nonperishable food) rather than a mix of different items. Also, determine where your donation is going, how it's going to get there, who's going to unload it and how it will be distributed. Without good planning, much needed supplies will be left unused.

Tips for Volunteers and Disaster Workers

FEMA offers excellent information for disaster workers and volunteers to help them recover emotionally and physically after helping with a disaster.

They also coordinate many counseling programs to help you adjust back to your normal life since the images and emotions can take weeks or months - even years - to heal.

Please DO NOT hold these feelings and emotions inside since they can lead to emotional destruction of you and your loved ones through domestic violence, divorce, isolation, addiction and/or suicide.

Please take advantage of these programs and counselors offered by FEMA following a disaster. There is absolutely nothing wrong with asking for some help in recovering emotionally.